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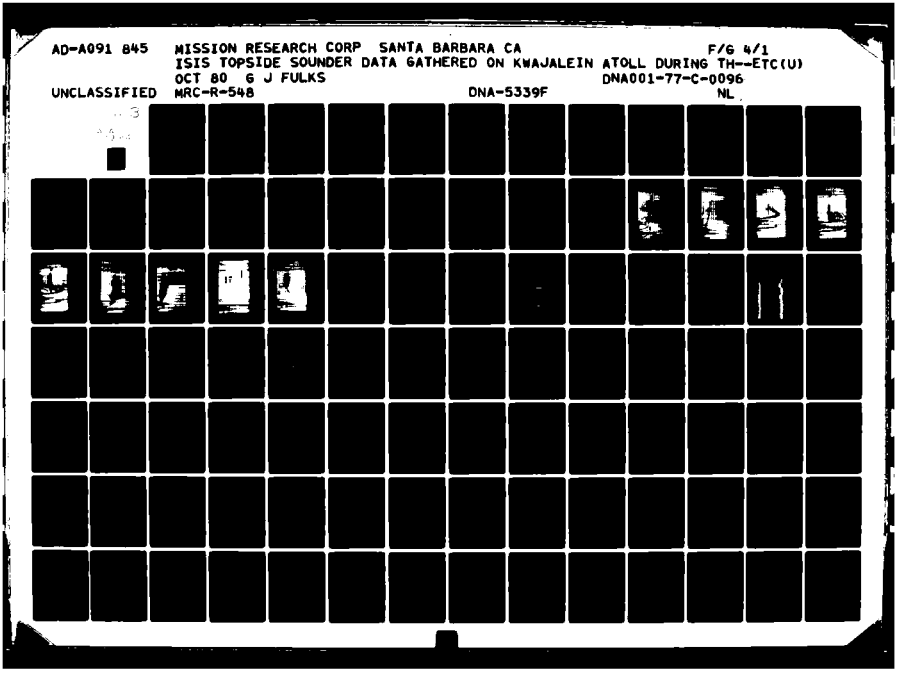

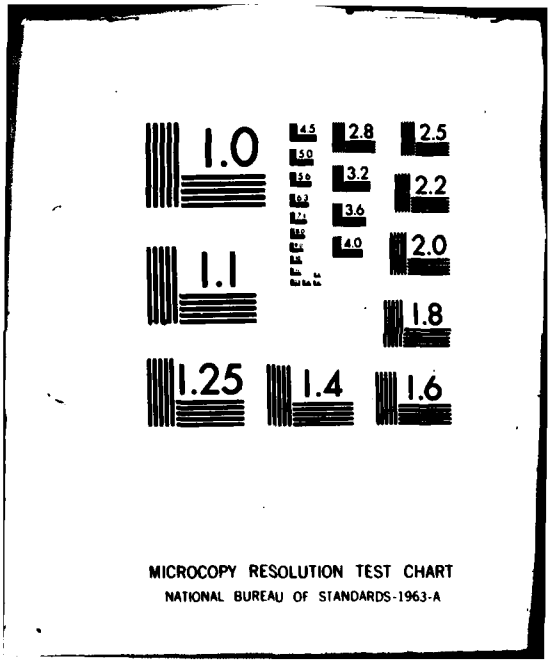
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DNA 5339F

ISIS TOPSIDE SOUNDER DATA GATHERED ON KWAJALEIN ATOLL DURING THE SUMMERS OF 1977 AND 1978

Gordon J. Fulks
Mission Research Corporation
P.O. Drawer 719
Santa Barbara, California 93102

31 October 1980

Final Report for Period 10 January 1977—31 October 1980

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Topside Ionosphere	Equatorial Ionosphere	ISIS
Topside Sounders	Equatorial Anomaly	
Ionograms	Ionospheric Irregularities	
Signal Scintillations	Conjugate Echoes	
Spread F	Ionospheric Bubbles	

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

In conjunction with the DNA Wideband Equatorial program, ISIS topside sounder data was gathered during the summers of 1977 and 1978 on Kwajalein Atoll, Marshall Islands. In addition, signal scintillation information using the VHF satellite telemetry signal was obtained in 1978. This report provides a summary of all the data including a description of each of the 252 satellite passes recorded.

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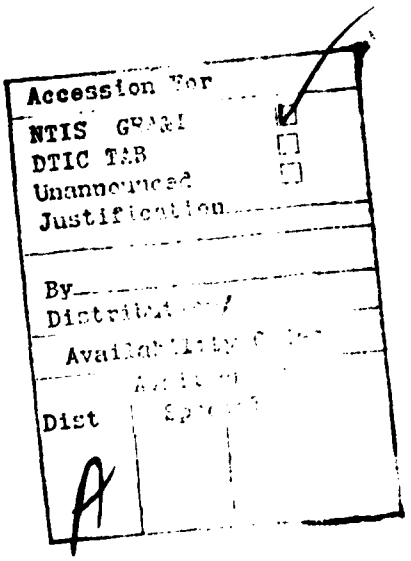
20. ABSTRACT (continued)

Preliminary data analysis shows that the active ionospheric region producing both severe signal scintillations and severe spread-F is coincident with the equatorial anomaly region. As this region rises in the post-sunset period and then rapidly descends, "exploded traces" appear on many equatorial ionograms. These field-aligned structures which are identified as plumes and may be related to equatorial bubbles, extend along the magnetic field from one conjugate region to the other and prefer the magnetic field line from 15° N to 15° S magnetic latitude. They have a limited east-west extent. Sometimes several can be seen to the east or west of the satellite separated by a smooth ionosphere.

Magnetic field-aligned ducts of depleted ionization are also an irregularity feature seen on low latitude ionograms in the evening. Those occurring within the anomaly region are potentially remnants of bubbles which have risen high on the topside and broken up. Those outside the anomaly region appear before the anomaly region breakup and are thus not directly related to bubbles. However, the mechanism producing them may also play a part in the formation of bubbles.

Mechanisms potentially responsible for the formation of ducts, bubbles, and equatorial plumes involve mismatched Pederson conductivities in the conjugate E-regions, acoustic gravity waves, gradient drift instabilities, and Rayleigh-Taylor instabilities.

The incidence of exploded traces on ISIS ionograms appears correlated with Zürich sunspot numbers. This correlation probably occurs because vertical ionospheric drifts which appear to precipitate exploded traces are correlated with the solar cycle.



SUMMARY

As part of the DNA Wideband Equatorial program, ISIS topside sounder data was gathered during the summers of 1977 and 1978 on Kwajalein Atoll, Marshall Islands. In addition, signal scintillation information using the VHF satellite telemetry signal was obtained in 1978. This report provides a summary of all the data including a minute by minute description of each of the 252 satellite passes recorded. A preliminary data analysis is also reported. While some conclusions are of a preliminary nature, several useful generalizations can be made.

The active ionospheric region producing both severe signal scintillations and severe spread-F is confined to that region about the magnetic equator known as the "equatorial anomaly" region (15° N to 15° S magnetic latitude). Because of the close geographical correspondence between the disturbed and anomaly regions as well as the fact that these regions appear larger or smaller together and have a similar diurnal dependence suggests that they have a common origin. Such a conclusion has also been reached by other investigators. The ISIS data as well as other measurements show that the topside ionosphere rises sharply near sunset as the equatorial anomaly becomes pronounced and assumes a double peaked appearance. Shortly thereafter, around 2000 local time (LT), the ionosphere begins to descend and spread develops with characteristic "exploded traces" appearing on topside ionograms. These distinctive traces are different from the spread traces observed at other times or locations. They are well correlated with the initial breaking up of the ionosphere and with strong VHF signal scintillations.

Exploded traces represent the initial phase of equatorial plumes which may have their origin in equatorial bubbles. These traces indicate that the disturbed ionosphere below the satellite consists of a layer of field-

aligned irregularities. The ionosphere above and below the disturbed region is generally smooth although exploded traces are sometimes observed at several altitudes simultaneously. While these traces extend along the magnetic field from one conjugate region to the other, they usually have a limited (perhaps 50 km) east-west extent. Occasionally, remote exploded traces are observed indicating a separate plume displaced hundreds of kilometers to the east or west of the satellite.

Because the ionospheric plasma is free to move along the magnetic field but unable to readily diffuse perpendicular to the field, exploded traces or plumes extend from near or below the F-layer peak in one hemisphere to the conjugate point in the opposite hemisphere. These plumes produce their strongest satellite signal scintillations in the region where they penetrate the peak of the F-layer, usually near 15° N or S.

Exploded traces apparently develop in response to the sinking of the ionosphere near 2000 LT. Bubbles rising from the bottomside probably play a large part in creating these traces but may not be the sole cause of them. ISIS cannot readily detect the bubbles directly but can detect the irregularities associated with them. These irregularities are thought to be created near the bubbles by an incompressible mixing of high and low density regions.

Most exploded traces are observed along a particular magnetic field L-shell ($L \sim 1.12$) while only a few are observed on lower L-shells. This suggests that either: 1) most bubbles rise from the bottomside principly near 15°N or 15°S magnetic latitude and are less prevalent at the magnetic equator, or 2) bubbles rise rapidly at all latitudes within the anomaly region and slow their ascent or stabilize on the L-shell with $L \sim 1.12$.

Ducted sounder echoes are another interesting irregularity feature which develops in the early evening low latitude ionosphere. These appear as multiple or conjugate echoes on ionograms and represent field-aligned tubes of

slightly depleted ionization. Two classes of ducted echoes can be distinguished on the basis of their location. Those occurring on field lines within the anomaly region are thought to be the late time remnants of bubbles. These bubbles have risen to the topside and broken up into "anti-striations" or ducts. Another type of ducted echo, which appears just before the equatorial ionosphere breaks up into exploded traces, is located just outside of the anomaly region. These ducts are not considered manifestations of bubbles but may have a common origin with bubbles.

Several mechanisms probably contribute to the formation of ducts, bubbles, and plumes although the precise contribution of each mechanism is not known. Ducts occurring outside the anomaly region are thought to be caused by mismatched Pederson conductivities in the conjugate E-regions giving rise to field-aligned currents which in turn generate significant irregularities in the E-region at night. These irregularities are then transferred to the F-region by electric fields until the formation of a deep E-F density valley near 2200 LT. This is the time when the number of ducts is observed to level off. Another process that may contribute to triggering and perhaps amplifying both duct and bubble formation involves acoustic gravity waves, traveling ionospheric disturbances, and the spatial resonance mechanism. Gradient drift instabilities driven by a cross-field neutral wind have the potential of breaking up the ionosphere as it sinks near 2000 LT or as bubbles rise through the otherwise smooth plasma. Finally, Rayleigh-Taylor instabilities apparently play a large part in amplifying perturbations on the steep bottomside into full scale bubbles.

The greater incidence of exploded traces or plumes in 1978 compared with 1977 correlates with solar activity indicated by Zurich sunspot numbers. Because exploded traces appear to develop in response to the gross vertical movement of the equatorial ionosphere and such movement varies substantially with the solar cycle, it is not surprising that the incidence of exploded traces varies with the degree of solar activity.

PREFACE

The author would like to thank the Communications Research Centre (Government of Canada) and Battelle Northwest Laboratories for considerable assistance with this project. Bill Campbell, Dave Boulding, and Jerry Berndt provided substantial support. Help from others, including the Kwajalein Missile Range and SRI International, is gratefully acknowledged.

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SECTION 1
INTRODUCTION

During the summers of 1977 and 1978, the Defense Nuclear Agency (DNA) sponsored "Wideband Equatorial" campaigns at the Kwajalein Missile Range in the Marshall Islands. The purpose of these campaigns was to investigate the highly disturbed nighttime equatorial ionosphere. Such disturbances have severe effects on satellite signals, producing both amplitude and phase scintillations at frequencies exceeding 1 GHz. The principal experiment on Kwajalein involved observations of these scintillations using transmissions from the DNA "Wideband" satellite.[1,2,3,4] Other experiments attempted to define the nature of the disturbed ionosphere producing the scintillations. Because a variety of measurements was made more or less simultaneously, a unique and valuable data base was accumulated. While the full value of the data collected by each experiment will be realized when integrated with the other experiments, such correlation has not yet been possible in many cases.

Experiments in addition to Wideband which collected data during the campaign included monitoring the VHF satellite beacon on the synchronous satellite, ATS-6, for scintillations, probing ionospheric irregularities with a high power VHF/UHF radar, measuring ionospheric neutral wind velocities with a Fabrey-Perot interferometer, taking in situ ionospheric measurements with the Atmospheric Explorer satellite and with rocket-borne payloads, measuring bottomside ionospheric characteristics with a bottomside sounder and measuring both topside ionospheric characteristics and signal scintillations using topside sounder satellites. Table 1 provides additional details on these experiments.

Table 1. Experiments conducted during the 1977 and 1978 DNA Wideband equatorial campaign.

NAME	ORGANIZATION	CONTACT	EXPERIMENT	COVERAGE DURING CAMPAIGNS
WIDEBAND	SRI	Robert Livingston	Satellite signal scintillations from VHF thru S-Band	Most days and nights near local noon and midnight
ATS-6	SRI	Robert Livingston	Satellite signal scintillations at VHF	Continuous during evenings
ALTAIR	MIT-LL SRI	Dave Towle Roland Tsunoda	Ionospheric irregularities	Several evenings only
FABREY-PEROT	U. of Pittsburgh	Manfred Biondi	Neutral winds in the ionosphere	Continuous most evenings
ROCKET EXPERIMENTS	Utah State AFGL NRL	Kay Baker R. Narcissi Ed Szuszczewicz	In situ measurements	Essentially none
ATMOSPHERIC EXPLORER	NASA	Henry Brinton	In situ measurements	A few evenings
DIGISONDE	U. of Lowell	Bodo Reinisch	Bottomside sounder	Nearly continuous
ISIS I&II	MRC	Gordon Fulks	Topside sounder and VHF scintillations	~ 4 satellite passes most evenings ~ 2 passes most mornings

This paper reports on the last of these experiments: the topside sounder and signal scintillation data from ISIS I and II (International Satellite for Ionospheric Studies). These satellites, launched in 1969 and 1971, have provided large quantities of high quality data on the topside ionosphere. ISIS II is equipped with a variety of experiments including a swept frequency sounder, fixed frequency sounder, VLF experiment, energetic particle detectors, soft particle spectrometer, ion mass spectrometer, Langmuir probe, retarding potential analyzer, beacon, cosmic noise detector, atomic oxygen red line photometer, and auroral scanner.[5] ISIS I has the same experiments with the exception of the red line photometer and auroral scanner. While some of these experiments are no longer functional or are marginally functional, both the swept frequency and fixed frequency sounders operate as well today as they did nearly a decade ago.

Both of the ISIS satellites are in high inclination (88°) polar orbits enabling them to scan the ionosphere from the poles to the equator. ISIS II has a nearly circular orbit 1400 km high while ISIS I has an elliptical orbit varying from a perigee of about 600 km to an apogee of about 3500 km. Both satellites look down on most of the topside ionosphere. They pass through only the much less dense high altitude regions. Hence, the ability of the ISIS sounders to scan the entire topside ionosphere beneath the satellite was of more interest to the Kwajalein campaign than the in situ capabilities of the satellite.

Table 2 provides a summary of basic satellite characteristics, Table 3 describes the sounders, and Table 4 describes the other experiments on board the satellites.

Because both ISIS satellites are in nearly sun-synchronous polar orbits, the local times at which they cross the equator during the day and night change very slowly. Both drift about four minutes earlier each day. Over the several week duration of the Kwajalein campaigns, the satellites only

Table 2. Summary of ISIS II spacecraft characteristics (adapted from Reference 5).

SPACECRAFT SIZE

Shape	approximates an oblate spheroid
Height	1.19 m
Diameter	1.27 m
Weight	261 kg

ORBIT

Approximately 1400 km circular

Incliniation 88.7° prograde

STABILIZATION

Spin stabilized

ATTITUDE SENSING

Six-probe flux-gate magnetometer

Digital solar aspect sensor

SPIN AND ATTITUDE CONTROL SYSTEM

Normal spin rate is near 3 rpm with a capability of changing the spin axis into either of two configurations:

a) Spin axis in the orbit plane

b) Spin axis in cartwheel configuration

POWER SYSTEM

11,008 solar cells

3 nickel-cadmium batteries

5 main dc to dc converters

4 hours/day operation in 70 percent sunlight

2 consecutive pole-to-pole passes

Table 2. Summary of ISIS II spacecraft characteristics (adapted from Reference 5) (continued).

COMMAND SYSTEM

Multiple digital tone AM system

2 command receivers connected redundantly

216 command capability

TELEMETRY SYSTEM

Transmitter # 1

Frequency	136.080 MHz with 100 kHz bandwidth
Power	4 watts
Modulation	FM video (sounder and VLF)
	FM/PAM/PDM (housekeeping data)
	FM/PCM (Auroral photometer)

Transmitter #2

Frequency	136.59 MHz with 50 kHz bandwidth
Power	2 watts
Modulation	PM/PCM (experiments and housekeeping)

Transmitter #3

Frequency	401.75 MHz with 300 kHz bandwidth
Power	4 watts
Modulation	FM and PCM

Table 3. ISIS II topside sounder characteristics (adapted from Reference 5).

SWEPT FREQUENCY SOUNDER

Power output	400 watt at PRF 45 pps
Antennas	Two crossed dipoles 73 m and 19 m tip to tip

Frequency range

Normal sweep 0.1 to 10 MHz in 10 sec.

Extended sweep 0.1 to 20 MHz in 20 sec.

Frequency range	Sweep rate
0.1 to 2.0 MHz	0.375 MHz/sec.
2.0 to 5.0 MHz	1.125 MHz/sec.
5.0 to 20.0 MHz	1.5 MHz/sec.

Frequency markers

0.1, 0.25, 0.5, 0.75, 1.0, 1.25, 1.5, 1.75, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 12.0, 14.0, 16.0, 18.0, 20.0

Frequency resolution between markers is ± 8 kHz.

Range marker

11.11 m sec. after zero range mark (not on ISIS I)

FIXED FREQUENCY SOUNDER

6 fixed frequencies are available by command:

(0.12, 0.48, 1.0, 1.95, 4.0, and 9.303 MHz)

These occur either during the flyback period of the sounder sweep or for a full sounder frame period on alternate frames.

Table 4. Summary of other experiments on ISIS II (adapted from Reference 5).

VLF EXPERIMENT

Receiver for radio noise studies (.05 to 30 kHz)

Optional onboard receiver for ion resonance studies

ENERGETIC PARTICLE DETECTORS

Detectors to measure electron and proton intensity, angular distributions, and energy spectra

SOFT PARTICLE SPECTROMETER

Electrostatic analyzer to measure directional intensity and energy spectra of protons and electrons from 10 eV to 10 keV

ION MASS SPECTROMETER

Magnetic spectrometer to measure positive ion mass (1-64 amu)

LANGMUIR PROBE

Two cylindrical electrostatic probes at opposite ends of the spacecraft to measure electron density and temperature

RETARDING POTENTIAL ANALYZER

Direct measurement of electron temperature, ion temperature, ion composition and charged particle density

BEACON

Two 100 mW beacons to investigate ionospheric irregularities (136.410 and 137.950 MHz)

COSMIC NOISE

Monitors background radio noise levels due to galactic, solar, and ionospheric sources using AGC of sounder receiver (0.1 to 16 MHz)

Table 4. Summary of other experiments on ISIS II (adapted from Reference 5) (*continued*).

ATOMIC OXYGEN RED LINE PHOTOMETER (NOT ON ISIS I)

Maps global distribution in the intensity of the 6300 Å emission from atomic oxygen

AURORAL SCANNER (NOT ON ISIS I)

Maps the distribution of auroral emissions at 5577 and 3914 Å on the dark side of the earth.

observed the ionosphere during a very limited period of local times. Fortunately, the evening period for both ISIS I and II during 1977 coincided with the early development of spread F. During 1978, ISIS II saw the period just prior to the onset of spread while ISIS I saw the period just after. The morning passes were also well timed showing the residual spread from the night before as well as the development of a strong daytime ionosphere.

While the satellite sounders provided details on ionospheric structure, the strength of the satellite telemetry signal provided simultaneous information on ionospheric scintillation at VHF. The sounders and telemetry signal usually looked at different regions of the ionosphere. The sounders principally viewed the ionosphere beneath the satellite while the telemetry signal, traveling on a line-of-sight to the receivers on Kwajalein, penetrated the peak ionospheric electron density at a different location. Only when the satellite traveled directly overhead did the two view the same ionosphere. However, the simultaneity of the measurements and their occasional spatial coincidence produced a rare look at the ionospheric structure accompanying scintillations.

Two hundred fifty two ISIS passes were recorded during the two summer campaigns on Kwajalein. Of these, about two thirds were evening passes and one third morning passes. An attempt was made to record every high angle pass over Kwajalein and quite a few more distant low angle passes. Not every attempt was successful; some passes were missed because of equipment failures, interference from other radio sources such as the Altair radar, and interference from severe ionospheric scintillations. During 1978, a strip chart recording was made of the receiver AGC voltage during most passes. This provided a direct measure of telemetry signal scintillations.

Although the ISIS satellites have been in existence for many years, the data base collected on Kwajalein is thought to be one of the more complete and detailed records of the highly disturbed nighttime topside equatorial ionosphere.

It is the intent of this paper to report on the data collected rather than to present conclusions. While it has been possible to examine all of the data, it has not been possible to analyze that data in a quantitative fashion. One preliminary analysis technique that is useful but has not been done is a "true height analysis" of the ionograms. This translates measured time delay into true height above the ground (or below the satellite) and changes ionograms into plots of electron density versus height. Without the use of this technique, one can still ascertain ionosphere structure but only in a more qualitative way.

Following the section summarizing the data is a section labeled "Preliminary Conclusions." This contains various observations drawn from a preliminary analysis of the data. It is intended to present ideas requiring further study rather than hard conclusions.

SECTION 2
DATA SUMMARY

This section contains a general description of the ionograms and signal scintillation records from the ISIS passes observed on Kwajalein. It does not contain any information from the other experiments on board the satellites, because such information was of less interest. The appendix contains a minute by minute summary of each pass.

All of the ionograms, originally recorded in analog fashion on magnetic tape, have been processed into photographs as a first step in the data reduction. The signal scintillation information was recorded on strip charts and is readily usable in this form. All of the data from the other experiments is still recorded on the original magnetic tapes and has not been examined.

2.1 TYPES OF IONOGRAMS

Figures 1 through 9 show sample ionograms from the data. These are intended to be typical of the various types of ionograms. While ionograms are rich in variety and detail, they can be categorized on the basis of prominent features. Table 5 lists the prominent features that are thought important in this study. It also gives the abbreviation codes that are used to label the sample ionograms and that are used later in the appendix.

Figure 1 shows a typical smooth daytime ionogram. The smooth ordinary and extraordinary traces are clearly visible from zero apparent range at the satellite to the peak of the F-layer hundreds of kilometers below. At still higher frequencies, both ordinary and extraordinary earth echoes can be seen. These appear to be 1500 or 1600 km below the satellite when, in fact,

SMOOTH DAYTIME IONOGRAM

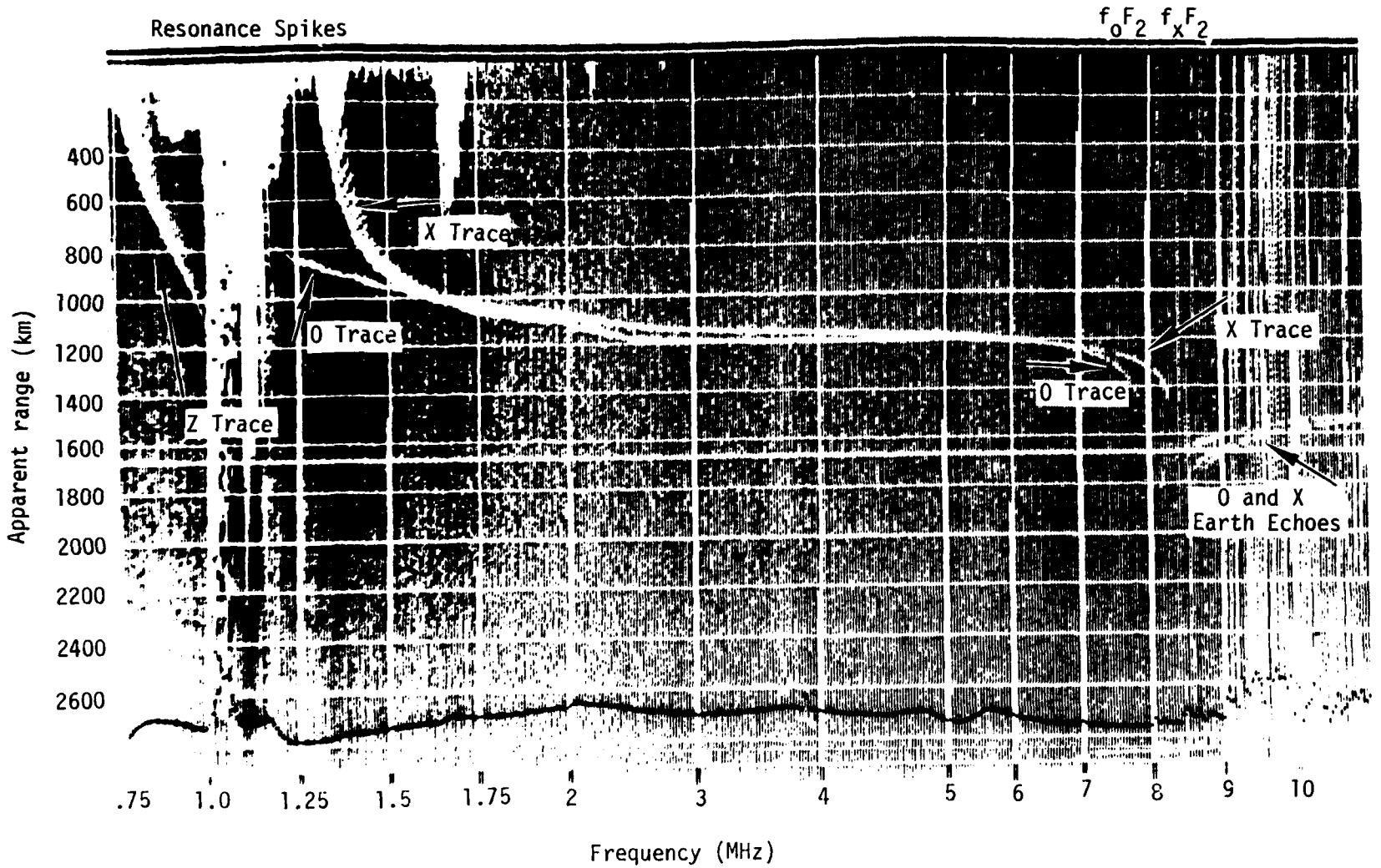

Figure 1. ISIS II 1978 Day 210 1858:52 Z 0635 LT (24° N, 174° E, 1433 km high) Smooth daytime ionogram. Labels: SM,ER 8.1

SMOOTH EARLY EVENING IONOGRAM

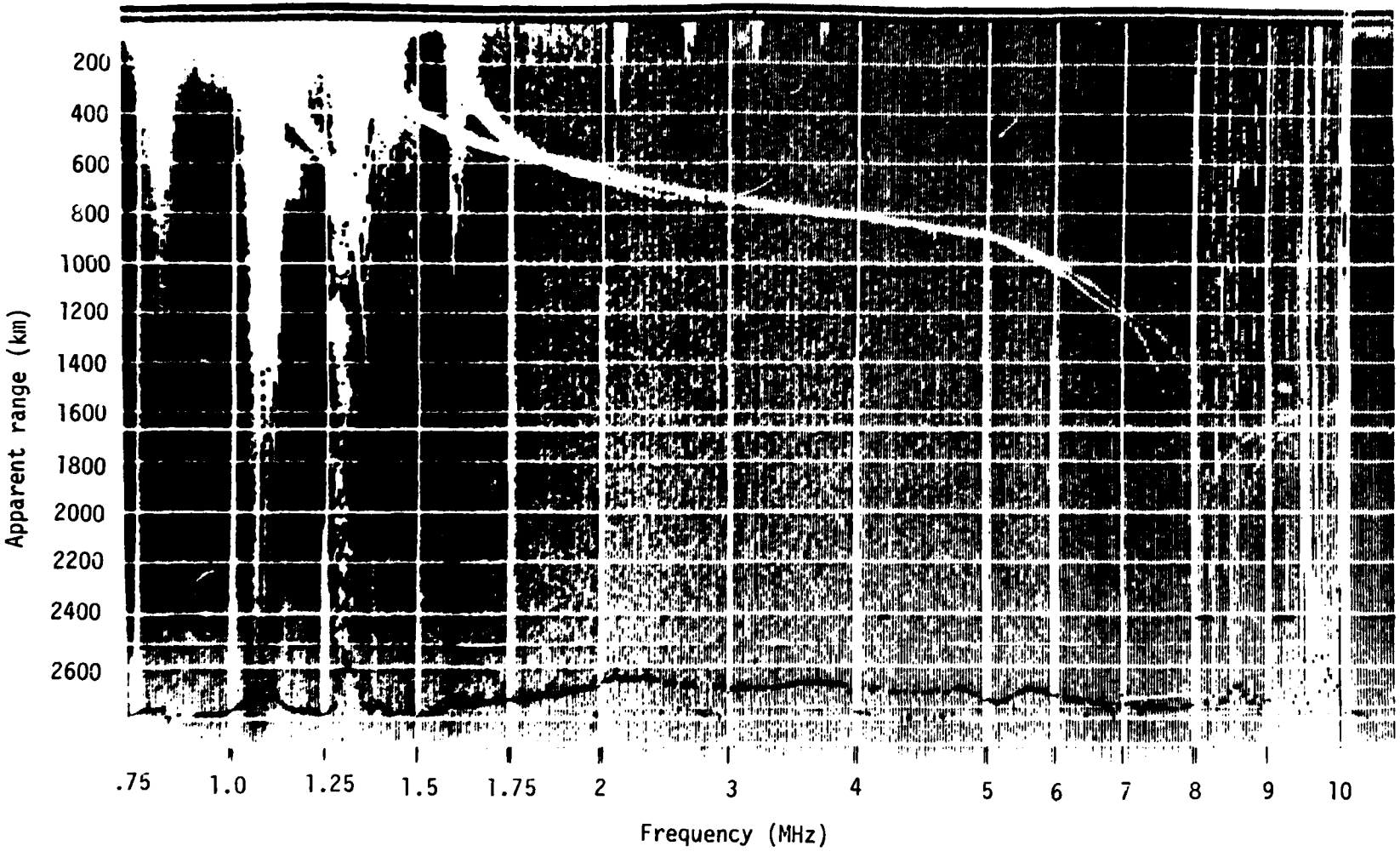

Figure 2. ISIS II 1978 Day 210 0648:02 Z 1840 LT (1° N, 178° E, 1369 km high). Smooth early evening ionogram. Labels: SM,ER 7.9

MULTIPLE ECHOES

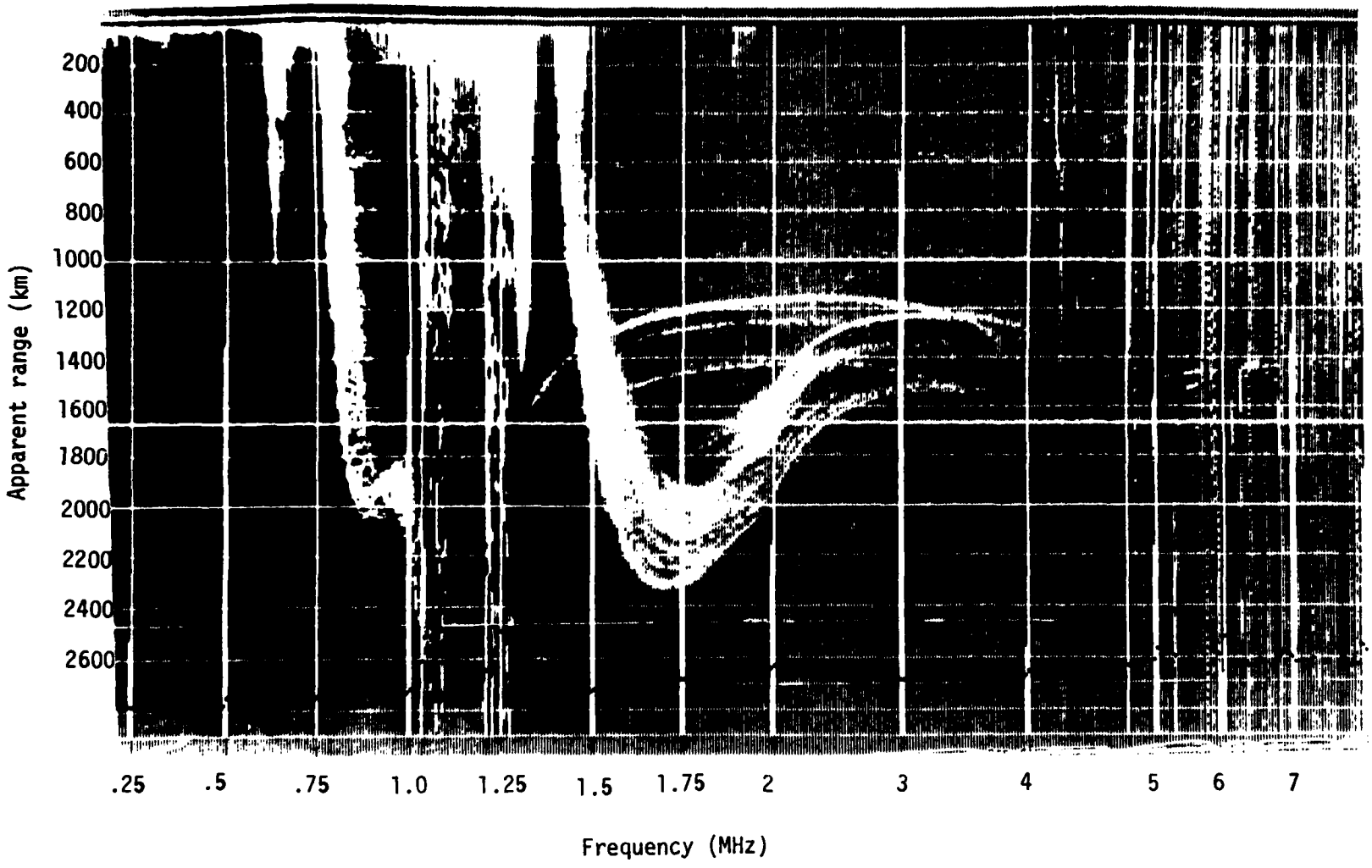

Figure 3. ISIS II 1977 Day 237 0834:39 Z 2035 LT (34° N, 180° E, 1381 km high). Multiple echoes (usually observed outside of the equatorial anomaly region). Primary traces are smooth. Labels: SM,ME,ER 4.2

MULTIPLE ECHOES -- CONJUGATE ECHOES

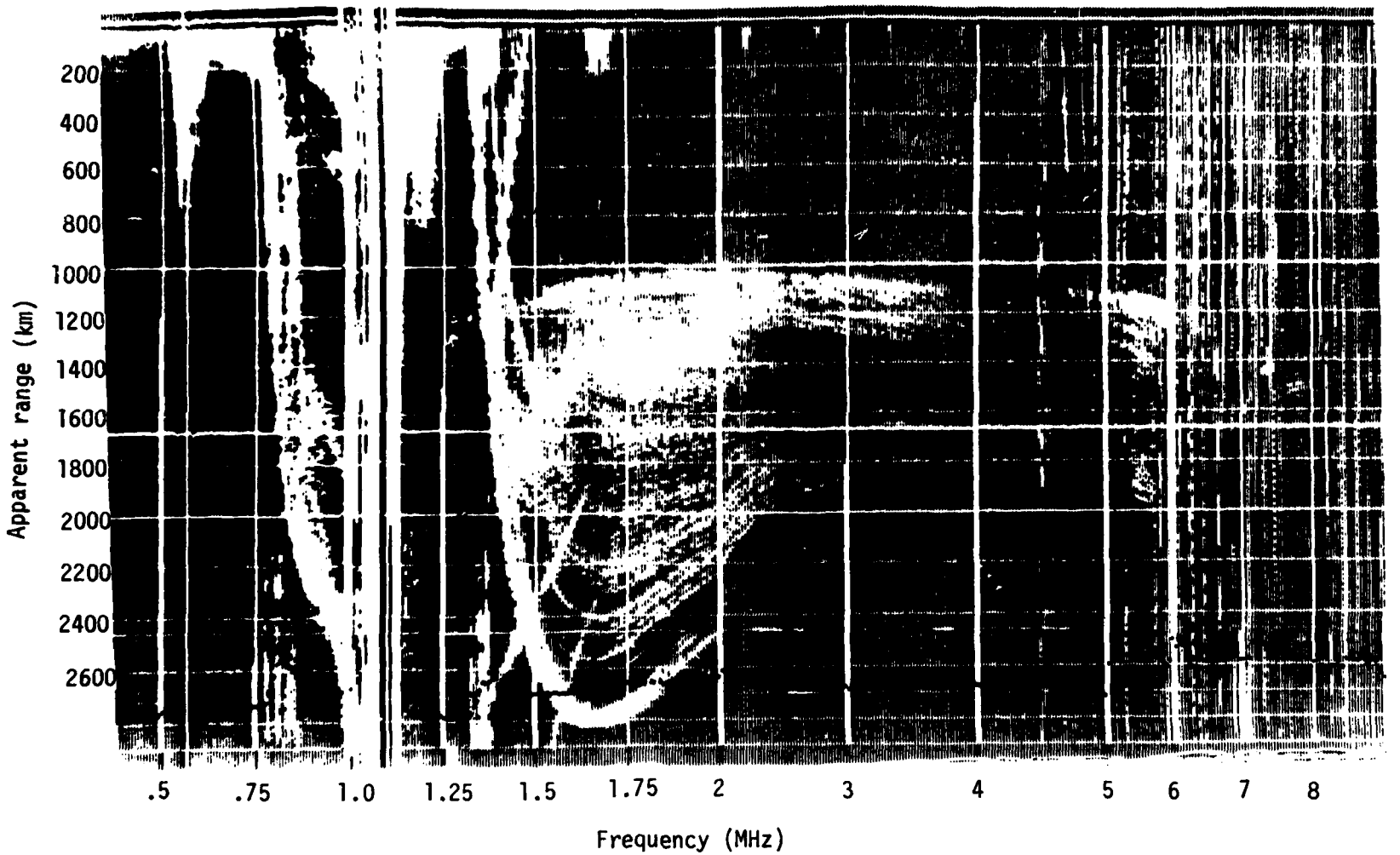

Figure 4. ISIS II 1977 Day 236 0946:24 Z 2034 LT (21° N, 162° E, 1392 km high). Multiple echoes and some conjugate echoes. Although the closely spaced multiple echoes near the primary traces make them look spread, the primary traces are still considered smooth.
Labels: SM,ME,CE(1.5) ~6

CONJUGATE ECHOES

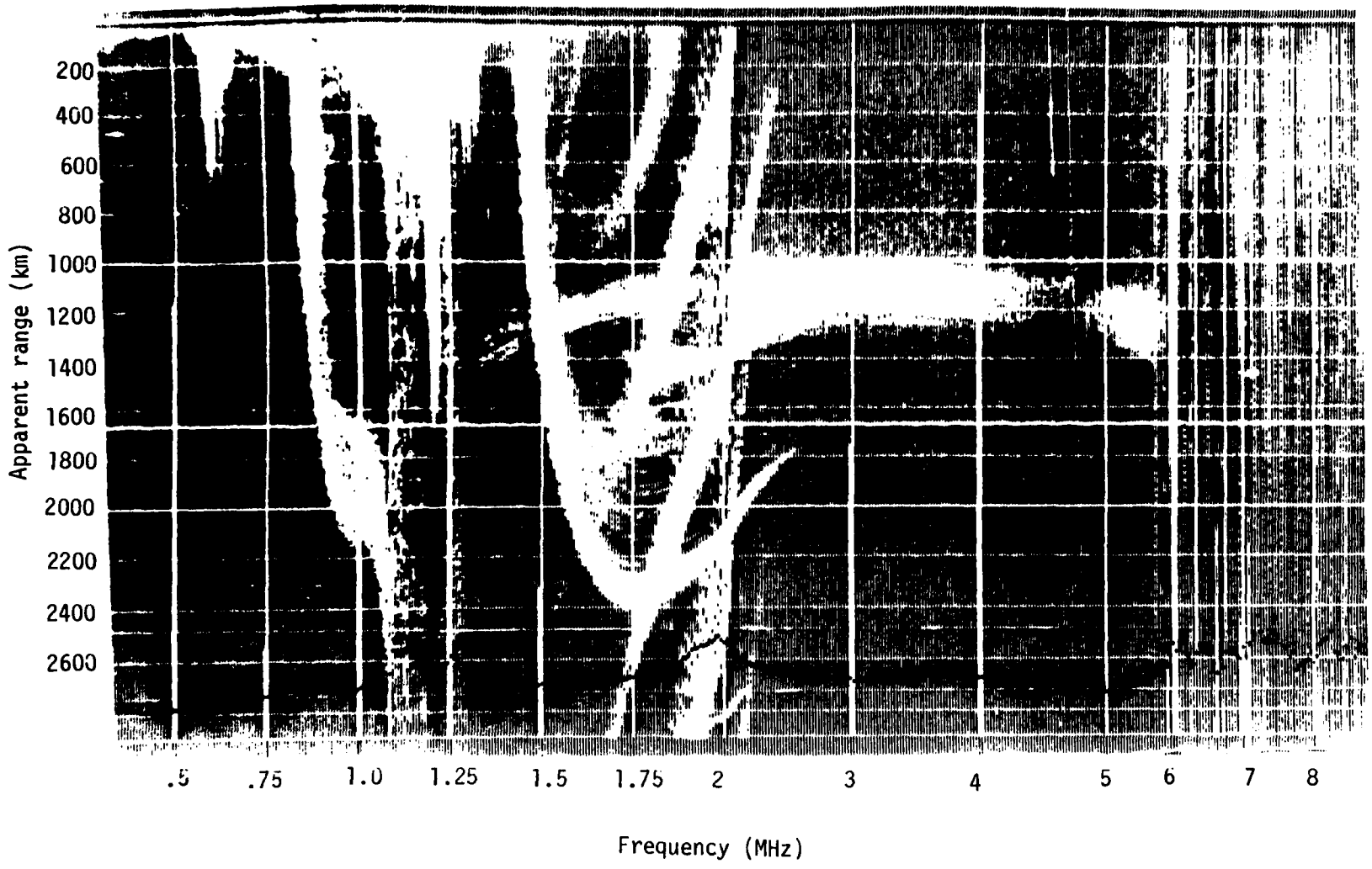

Figure 5. ISIS II 1977 Day 236 0948:59 Z 2037 LT (29° N, 162° E, 1386 km high). Strong conjugate echoes overlaid on multiple echoes. The primary echoes are still considered to be smooth. Labels: SM,ME,CE(1.8), ER 6.0

MASSIVE EARLY MORNING SPREAD

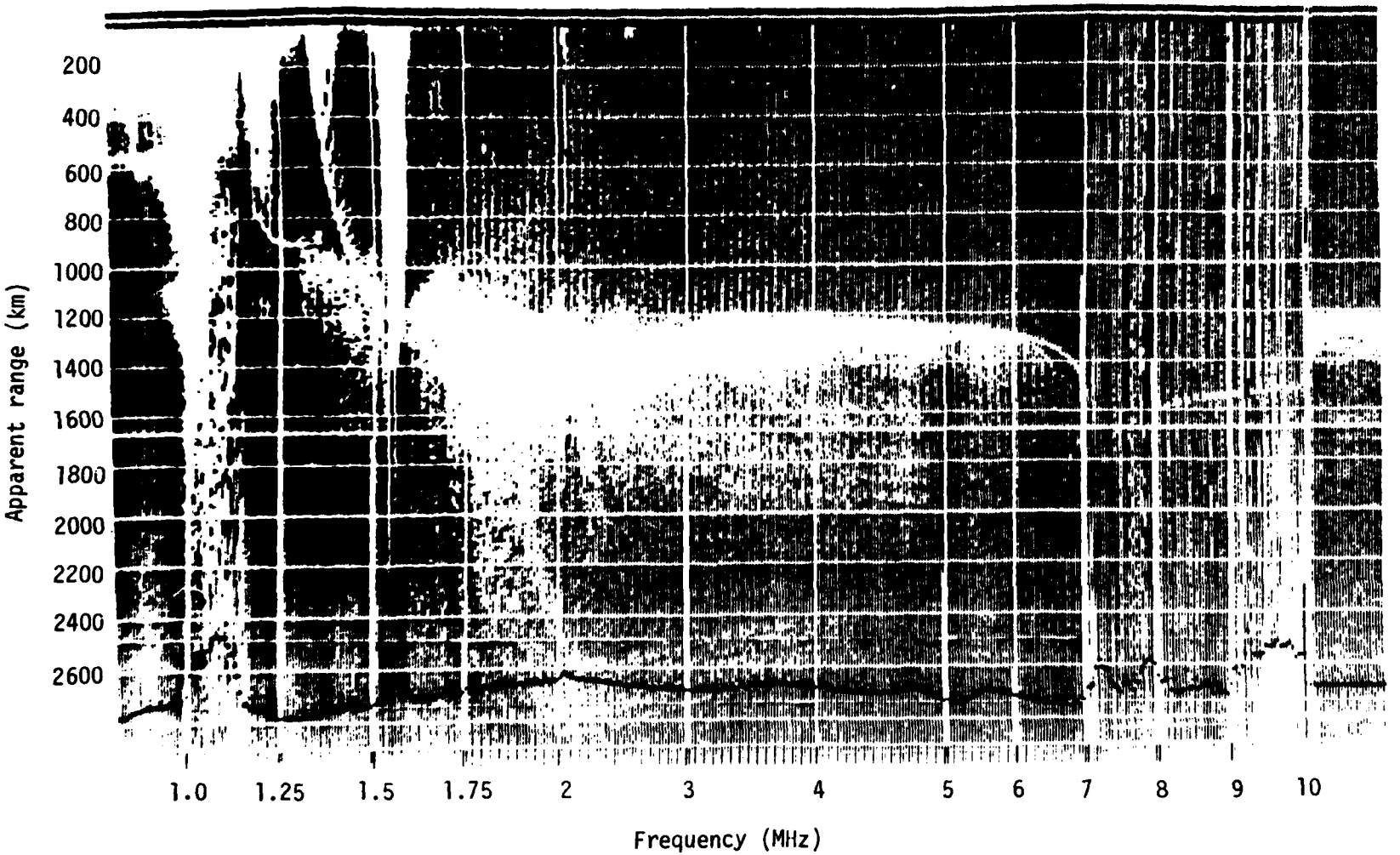

Figure 6. ISIS II 1978 Day 210 1904:23 Z 0636 LT (7° N, 173° E, 1435 km high). Massive daytime spread probably left over from the night before. Multiple echoes are also visible and somewhat difficult to distinguish from the spread. Labels: VVSP,STV,ME,ER 6.8

MASSIVE NIGHTTIME SPREAD

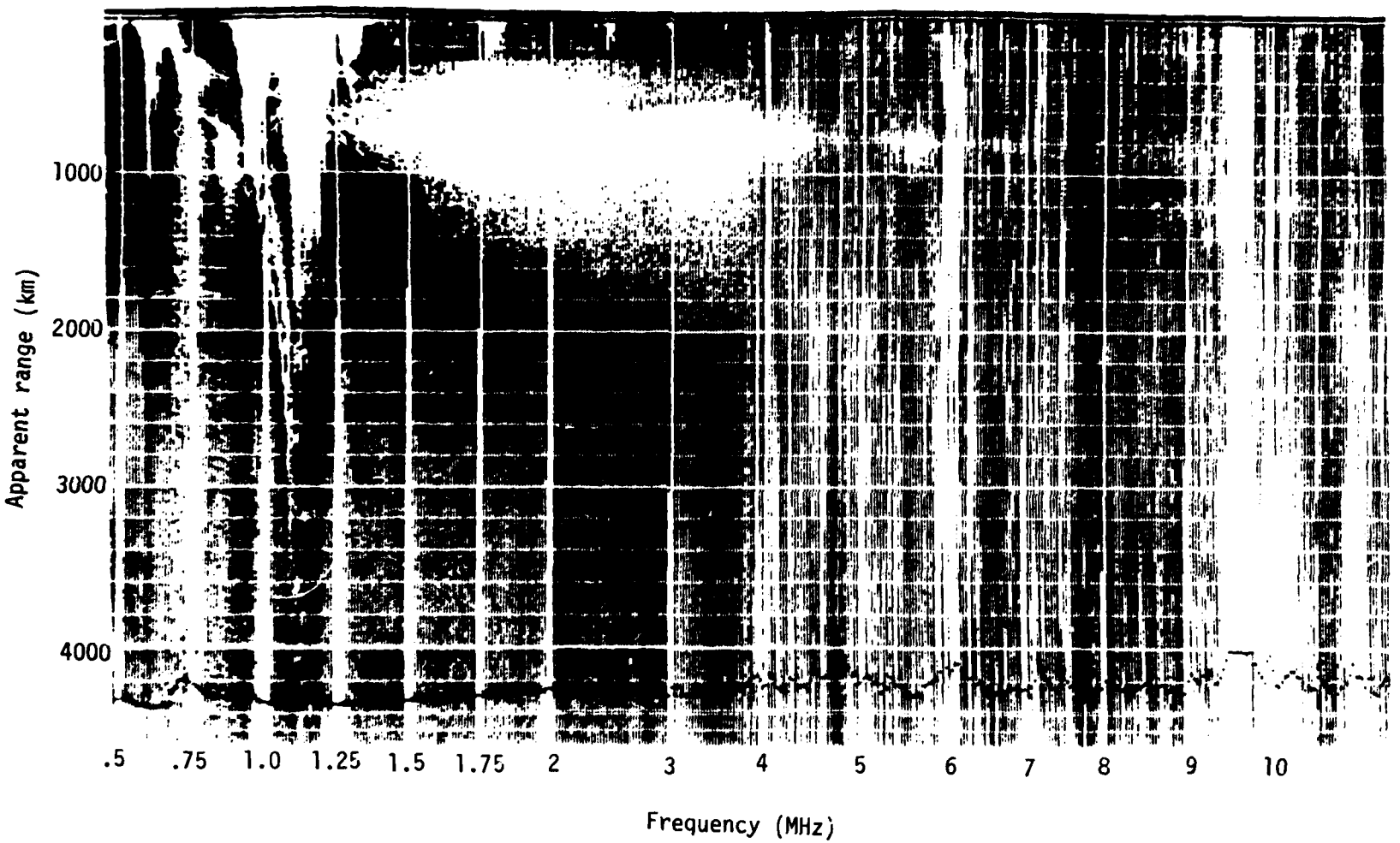

Figure 7 ISIS I 1977 Day 237 1036:37 Z 2225 LT (3° N, 177° E, 1080 km high). Massive nighttime spread observed at close range. Hints of a relatively smooth ionosphere are visible at less than 1.25 and more than 4.5 MHz. Labels: VVSP,STV >7.5

EXPLODED TRACE -- REMOTE SPREAD

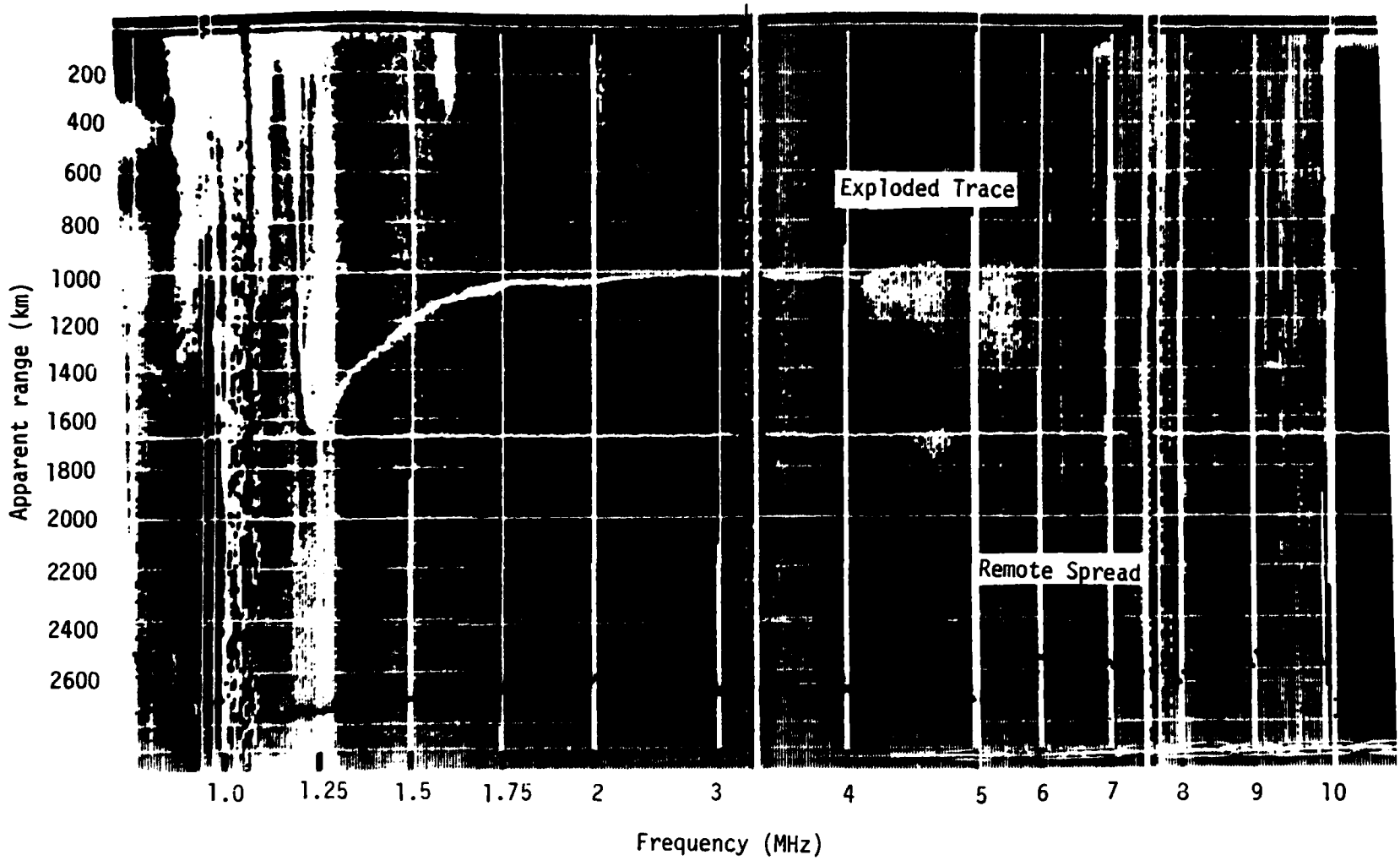

Figure 8. ISIS II 1977 Day 228 1021 Z 2109 LT (6° N, 162° E, 1415 km high). Exploded trace and remote spread. Labels: VSP,STV,ET(4.1),RS ≥6

EXPLODED TRACE (PLUME)

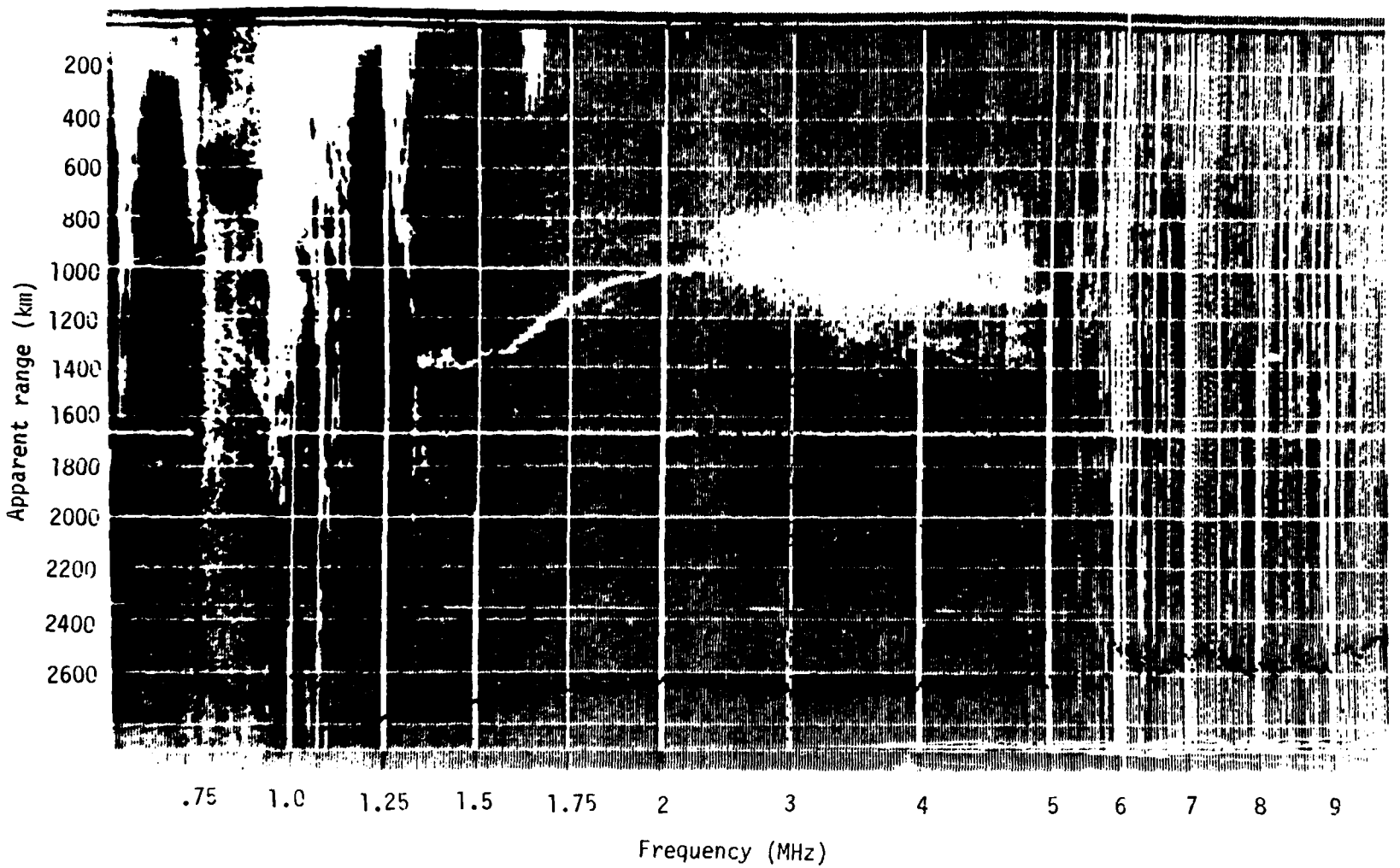

Figure 9. ISIS II 1977 Day 229 1058 Z 2106 LT (4° N, 152° E, 1415 km high). Exploded trace showing spread layer well above (and perhaps below) the smooth trace. Labels: VVSP,STV,ET(2.3) $\geq$ 5.0

Table 5. Terminology used to describe ISIS topside ionograms.

SM	=	SMOOTH TRACE(S)
ER	=	EARTH RETURN(S)
ME	=	MULTIPLE ECHOES
CE	=	CONJUGATE ECHOES
OFF	=	SATELLITE OFF
M	=	MISSING DATA
WSP	=	WEAKLY SPREAD TRACE
SP	=	SPREAD TRACE
VSP	=	VERY SPREAD TRACE
VVSP	=	VERY VERY SPREAD TRACE
ET	=	EXPLODED TRACE
RSP	=	REMOTE SPREAD
STV	=	SMOOTH TRACE VISIBLE (DESPITE SPREAD)
NP	=	NEAR PEAK OF F-LAYER

All numbers used in Table 7 refer to frequency in MHz.

the earth is only 1400 km down. The apparent range is always greater than or equal to the real range and, in some cases, much greater than the real range. The resonance spikes occur because the satellite sounder is immersed in the ionosphere and excites various plasma modes at the satellite. These modes contain information on the weak ionosphere near the satellite and are generally of less interest to this study than the higher density regions below. The coded labels refer to those listed in Table 5, and the number is an estimate (in MHz) of the peak or critical frequency of the F-layer. This peak frequency is taken for convenience as an average of the X and O maximum frequencies. Hence, Figure 1 is labeled as having a smooth trace, earth echoes and a critical frequency of 8.1 MHz.

Figure 2, showing a smooth early evening ionosphere, is similar to Figure 1 except that the topside ionosphere is much higher. When the electron density gradient is steep, the X and O traces are nearly horizontal, and a single value can be used for the height of the topside ionosphere. Under these circumstances, the apparent range is close to the true range. In Figure 2, this steep gradient occurs at an apparent range of about 800 km corresponding to a topside height of about 600 km above the earth's surface. Figure 1, in contrast, shows a topside height of only about 200 km.

Because the satellite sounder broadcasts and receives sounding pulses through an essentially isotropic antenna system, returns are theoretically possible from any region of the ionosphere within sight of the satellite. When the ionosphere is perfectly smooth, mirror-like reflections back to the satellite can only come from directly below. The result in this case is one set of traces such as those shown in Figures 1 and 2. However, if the layers of constant electron density have features such as peaks, valleys, ducts, or other irregularities, multiple echoes are possible. Figure 3 shows the multiple echoes appearing as a series of X and O traces occuring at progressively greater range from the satellite. These have been seen at all magnetic latitudes but are most prevalent just outside the equatorial anomaly

region which extends from about 15° N to 15° S magnetic latitude. Although the equatorial anomaly is a peak in electron density space and may contribute to multiple echoes, many of the echoes appear to come from propagation down magnetic field-aligned ducts. These ducts are generally located below the satellite and may represent enhanced or depleted electron densities.[7]

If the satellite happens to be inside a duct, strong "conjugate echoes" are observed. These are a type of multiple echo involving ducting of sounder radio waves from one magnetic conjugate region to the other. Figure 4 shows an ionogram with both multiple and conjugate echoes. The conjugate echo involving propagation from the satellite to the nearby conjugate region is seen as the strong multiple echo at the largest apparent range. Other conjugate echoes involving ducting to the opposite hemisphere are seen near 1.5 MHz.

Figure 5 shows very prominent conjugate echoes overlaid on multiple echoes. References 8 and 9 provide a detailed explanation of these using Figure 10. Basically, when the satellite enters a magnetic field-aligned tube with a slightly depleted electron density relative to the surrounding ionosphere, some of the sounder pulses become trapped in this tube and echo back and forth from one conjugate region to the other. This trapping prevents the normal divergence loss of the radio wave energy and produces a strong return each time the pulse passes the satellite. When the apparent range of a conjugate echo exceeds the display capability of the ionogram, the echo is nevertheless overlaid on the ionogram as shown in Figure 10. Conjugate echoes can occur any time of the day or night but are more prevalent at night when the ionosphere is disturbed.

Figure 5 also shows that many closely spaced multiple echoes can make otherwise smooth primary traces appear spread. We arbitrarily choose not to call this "spread" because of its apparent multiple echo origins and because other more amorphous spread appears to be significantly different.

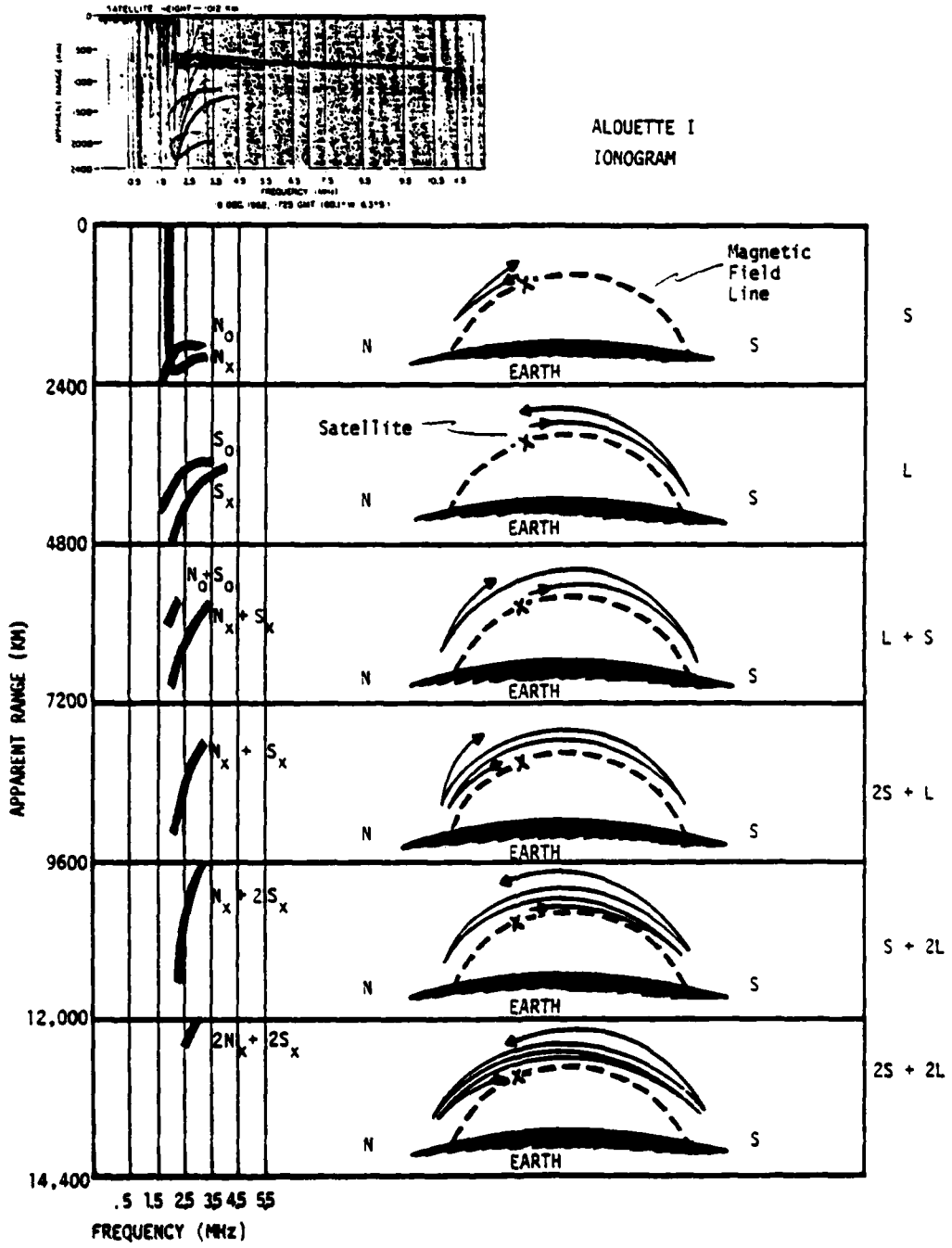

Figure 10. Illustration of the origin of conjugate echoes on an Alouette ionogram. L and S in the right margin refer to long and short paths. (From References 8 and 9).

Figure 6 shows massive daytime spread existing, for the most part, below the partially visible smooth primary traces. Some multiple echoes are visible and contribute to the spread but are not the obvious cause of much of it. In order to distinguish the degree of the spread, a qualitative label is assigned. This particular figure shows about the most spread observed and is labeled "very, very spread." Such massive daytime spread is unusual (in contrast to nighttime spread) and only seen early in the morning just after sunrise. It may be left over from a very active night or formed near dawn. While nighttime spread can be correlated with signal scintillations, daytime spread appears to have little or no relation to signal scintillations.

Figure 7 shows massive nighttime spread observed by ISIS I. This is more amorphous than the daytime spread and appears both above and below the smooth trace. Such massive spread is also labeled "very, very spread."

Because some types of spread (e.g., Figure 7) can be correlated with signal scintillations while other types cannot (e.g., Figure 6), it is important to look for unique features of the spread related to scintillations.

Figure 8 shows one important feature which appears mostly in the early evening before the ionosphere has completely broken up. We call it an "exploded trace" because of its appearance on the ionogram. In this figure, the completely smooth X-trace abruptly explodes at about 4.1 MHz into a very spread trace. The spread occurs both above and below the smooth trace. The spread occurring above the smooth trace must necessarily be located above the otherwise smooth ionosphere at that electron density. On the other hand, the spread beneath the smooth trace can either be below the smooth ionosphere or off to the side and not directly below the satellite. Some spread noted in Figure 8 is clearly off to the side and is labeled "remote spread."

Exploded traces are well correlated with signal scintillations and with the early development of spread. Furthermore, they only occur within the equatorial anomaly region where the severely disturbed ionosphere develops. They are thought to provide important information on the ionospheric processes leading to the breakup of the equatorial ionosphere. Exploded traces are discussed further in the next section.

Figure 9 shows another more pronounced exploded trace located over the magnetic equator. This one occurs at 2.3 MHz. During a given pass, most exploded traces appear to follow the magnetic field line connecting the north and south boundaries of the equatorial anomaly region. In some cases (not shown), several exploded traces can be seen at different frequencies. The one at the lowest frequency will appear to be on the field line connecting the boundaries of the anomaly region, while others will be on field lines interior to that region. Occasionally, remote spread echoes will also show exploded traces.

2.2 TYPES OF SIGNAL SCINTILLATION RECORDS

Figures 11 and 12 show typical strip chart recordings of the AGC voltage from the 136 MHz FM or PM receivers used to receive the telemetry signals from ISIS. By recording this voltage, a measure of amplitude scintillation is obtained. Table 6 shows the descriptive terms used to characterize these records and the abbreviations for the terms used in the data summary. Characterization of the records was not entirely straightforward, because periodic Faraday and antenna pattern fading made otherwise quiet passes look disturbed. In Figure 11 the slow fades with a period of several minutes are thought to come from Faraday rotation of the telemetry signal. This causes the out of phase behavior between the two receivers. The shorter period fades which occur in phase between the two receivers are due to the rotation of the satellite telemetry antenna. Any periodic fading was ignored in the analysis. Hence, some amplitude scintillation may have been ignored, especially during the daytime. Long period, slow fading may also have been ignored. Strong,

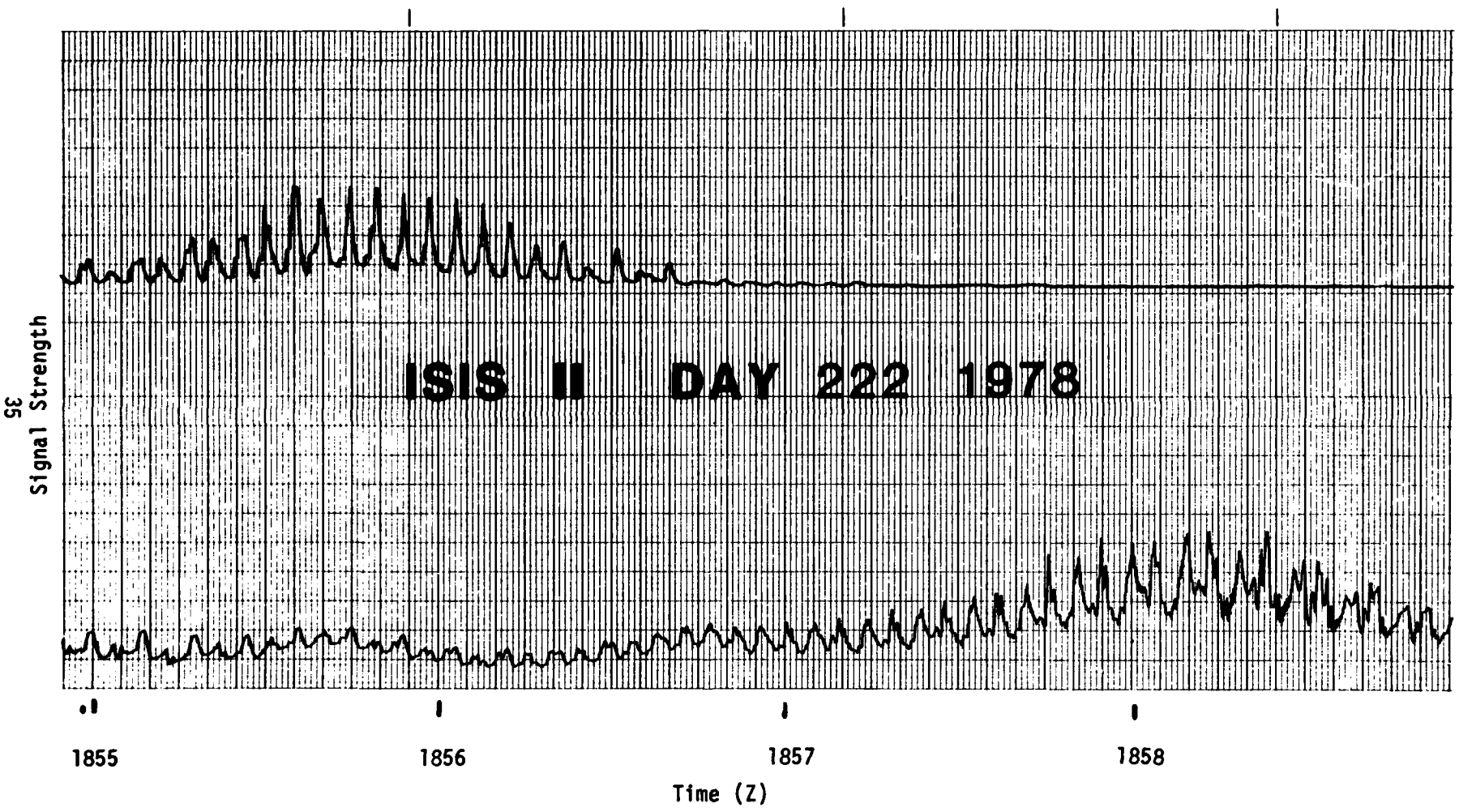

Figure 11. VHF signal scintillation record during a quiet period. The two traces show the AGC voltages from the two FM receivers. The traces have different zero values. For a given trace, higher values imply weaker signals. The receivers were connected to the antenna system such that one received right circular polarization and the other left circular polarization. Both AGC responses were set at 1 sec.

SCINTILLATION RECORD AT 136 MHz

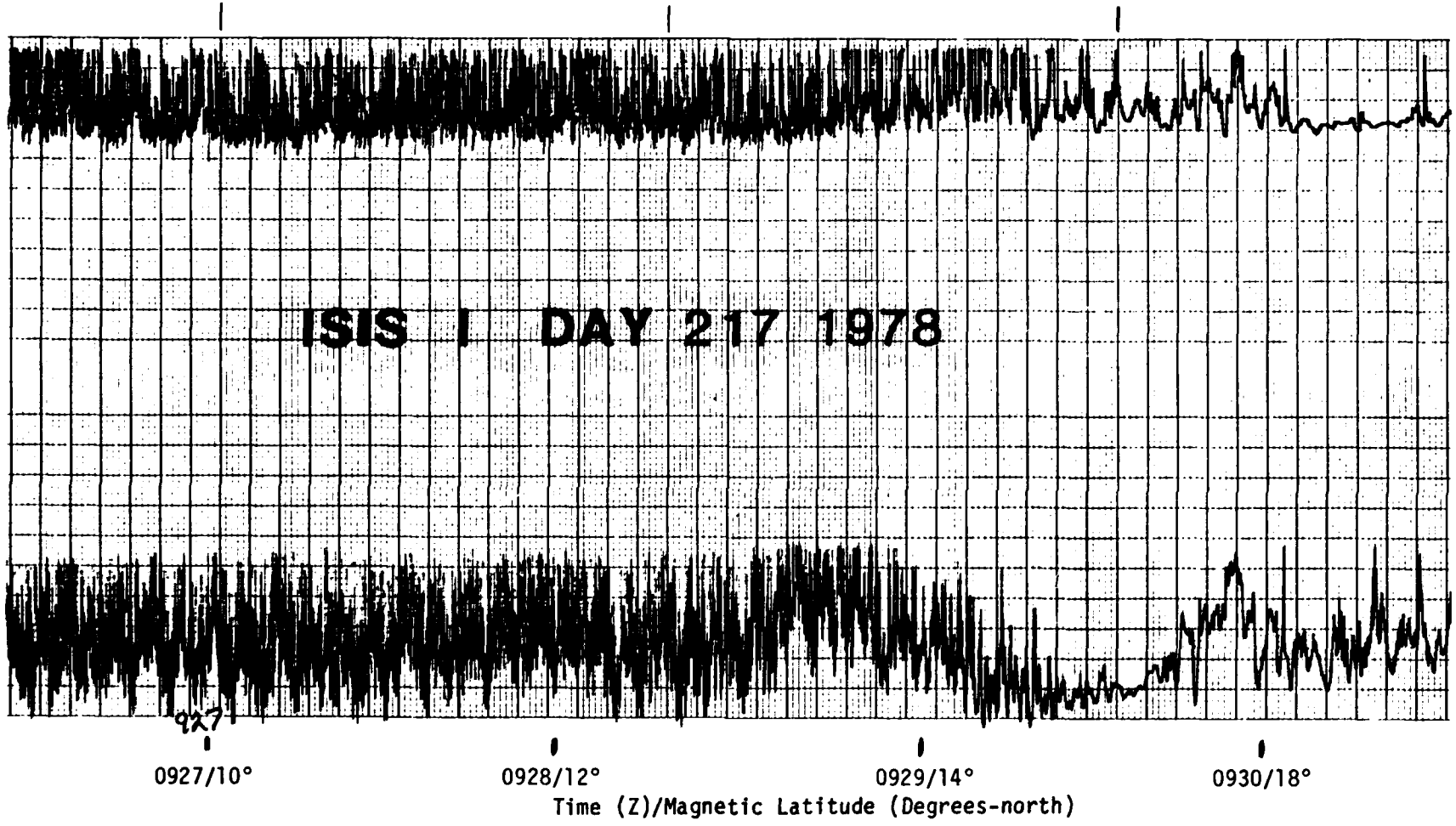

Figure 12. VHF signal scintillation record during a disturbed period. The top trace shows the AGC voltage from one of the PM receivers while the bottom trace is from one of the FM receivers. Both receivers were operating with a 10 msec AGC response. The magnetic latitude scale refers to the location of the point where the telemetry signal penetrated a 300 km altitude.

Table 6. *Terminology used to describe ISIS signal scintillation strip chart recordings. Scintillation refers to amplitude scintillation at 136 MHz.*

Q	=	QUIET SIGNAL (No apparent scintillation)
WS	=	WEAK SCINTILLATION (Slow, shallow fades)
SC	=	SCINTILLATION (Moderate speed, deeper fades)
SSC	=	STRONG SCINTILLATION (Fast, deep fades)
VSSC	=	VERY STRONG SCINTILLATION (Very fast, deep fades)
SAT	=	SATURATED SCINTILLATION (Extremely fast, deep fades)

rapid scintillations have a distinctive character as shown in Figure 12 and are easily noted. Quantitative calibrations of the AGC voltages were performed but have not been folded into the present analysis. Typical strong scintillations involved amplitude fades of 30 dB. The differences between the categories of scintillation are qualitative and arbitrary. On a given pass, such categories allow one to distinguish changing levels of scintillation as the satellite moves through the disturbed region.

SECTION 3
PRELIMINARY CONCLUSIONS

This section presents conclusions developed from a preliminary look at the data. These conclusions are considered tentative.

Ionograms are very detailed pictures of the ionosphere. However, it is not always possible to ascribe one unique ionospheric structure to a given ionogram. In the simple case of reflections from below the satellite, the structure is usually clear, but, when oblique echoes are involved, the problem is often very complex. Unfortunately, the spread ionograms correlated with signal scintillations fall more into the latter category than the former. Furthermore, ISIS satellite passes occur only rarely and do not last more than about 20 minutes. This means that it is not possible to watch the time development of severe spread. Such development can only be inferred from statistical studies of many passes.

On the other hand, ISIS provides excellent geographical coverage along the magnetic field. Latitudinal variations in the ionosphere are readily apparent.

3.1 EQUATORIAL ANOMALY

The most pronounced and interesting latitudinal variation near the equator is the "equatorial anomaly."[10] Early evening ISIS II data from 1978 consistently shows the peak electron density rising sharply as the satellite approaches the magnetic equator from about 15° N or 15° S. (Kwajalein is a few degrees north of the magnetic equator.) Once inside this region, the peak

density falls somewhat near the magnetic equator. The solid curve in Figure 13 shows the effect. Later in the evening, this effect is harder to see as the ionograms become severely spread. By late evening or early morning, the anomaly region has substantially disappeared to the extent that little or no peak in the electron density may be seen near the magnetic equator. With morning and the rising sun, the peak reappears initially as a single peak without the camel-back appearance (dashed curve). This effect has been known for over thirty years[10] and studied extensively.[11-16] It has been explained in terms of the upwelling of ionization at the equator, the "equatorial fountain." An $\vec{E} \times \vec{B}$ drift apparently forces ionization upward at the equator across magnetic field lines. Once at an altitude less than or equal to about 700 km, the plasma begins to diffuse down under the influence of gravity along the magnetic field. Because the field line at 700 km reaches down to the peak of the F-layer at 15° N and 15° S, the ionization tends to accumulate at these points producing the solid curve in Figure 13.[16-21] Although the equatorial anomaly is shown as symmetric about the magnetic equator in Figure 13, significant asymmetries sometimes exist.

Taken alone, the equatorial anomaly is a curious effect without obvious consequences. From the observations reported here, it seems much more significant. For instance, the anomaly region contains all of the severe spread. When the satellite moves out of this region, the ionograms change abruptly from spread to multiple echoes or smooth. Signal scintillation records display a similarly abrupt change at this boundary from severe scintillation within the region to quiet outside (see Figure 12). Often a peak in the scintillation intensity is observed at these boundaries. The exploded traces of spread ionograms appear strongly field-aligned and prefer the field line forming the boundary of the anomaly region. Figure 14 shows another view of the equatorial ionosphere with the anomaly region shaded. Occasionally, the region is larger or smaller than shown (by as much as 5 degrees), and occasionally, it is asymetric.

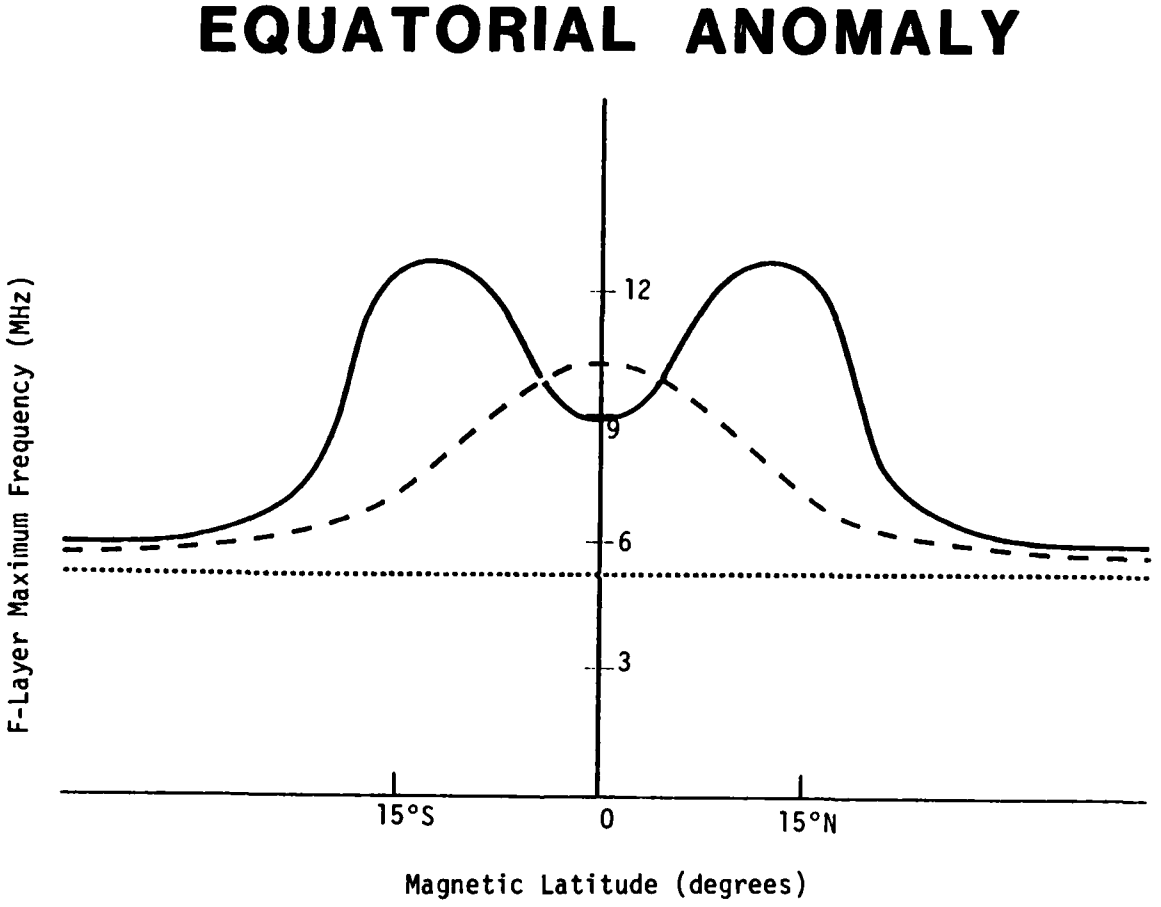

Figure 13. Nominal variation of the F-layer maximum frequency with magnetic latitude. The solid curve shows the equatorial anomaly which develops in late afternoon. The dotted curve is for late evening while the dashed curve applies to morning conditions.

EQUATORIAL ANOMALY REGION

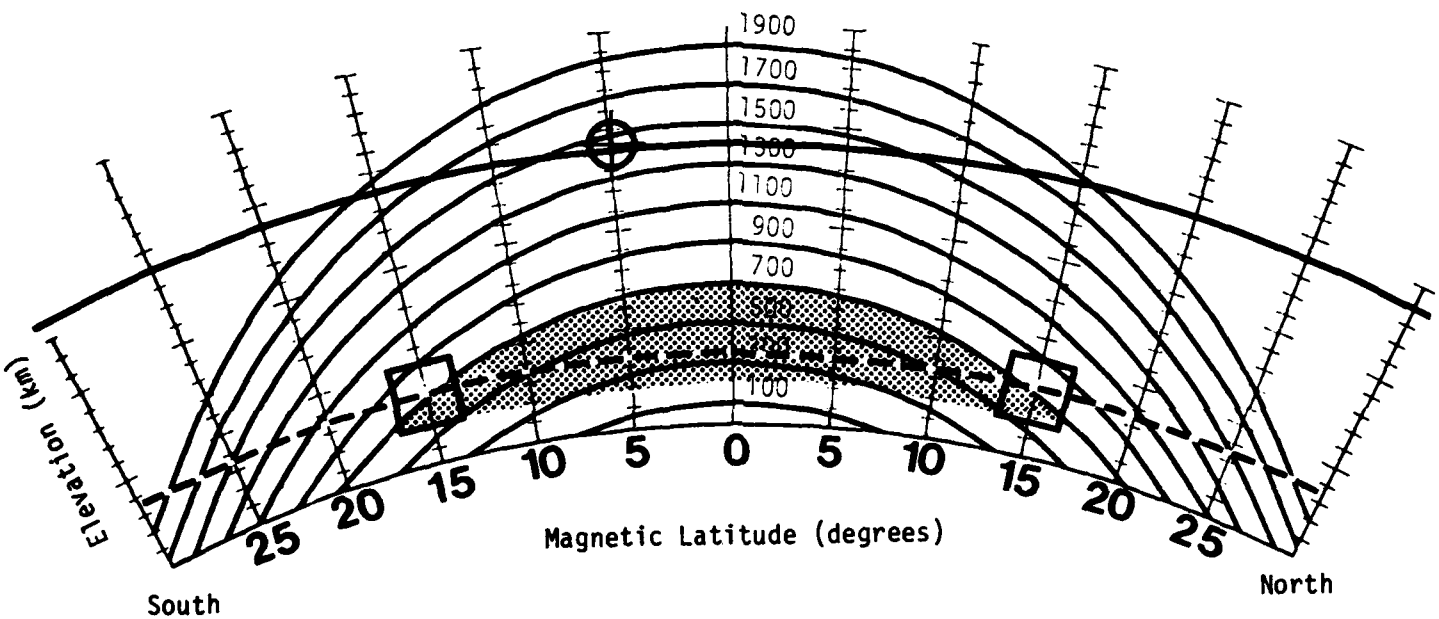

Figure 14. Cross sectional view of the equatorial region in a north-south plane showing magnetic field lines and the usual extent of the equatorial anomaly region (shaded). The squares show where the strongest scintillation is observed, and the circle at 1400 km denotes ISIS II. The dashed line indicates the approximate location of the peak of the F-layer while the solid line at 1400 km indicates the orbit of ISIS II.

3.2 EXPLODED TRACES

Exploded traces were noted in the early days of topside sounders (although not by that name). Reference 22 discusses one such trace shown in Figure 15. The true height analysis shown indicates that the spread amounts to a relatively thin layer of overdense irregularities about 40 km thick above the otherwise smooth ionosphere. This layer has a limited east-west but long north-south extent. Reference 22 supposes that the irregularities produce overdense reflections but are sufficiently sparse that some of the sounder signal can penetrate to the smooth ionosphere below.

In contrast, Reference 23 views these irregularities as basically underdense, producing radio wave reflections because their cross sections are small compared to the wavelengths of the sounder radio waves. The irregularities then need not differ greatly in density from the surrounding plasma. They can be either slight enhancements or depletions. Because only partial reflection of the radio wave occurs at any particular irregularity, the irregularities can be closely packed and yet still partially transparent to the sounder radio waves. In situ rocket measurements of equatorial ionospheric and barium cloud irregularities show numerous irregularities along an arbitrary rocket trajectory. Because numerous overdense irregularities could not produce the semi-transparent ionosphere observed on ionograms, it is likely that underdense reflections account for many of exploded traces observed in the equatorial ionosphere. References 7, 24, and 25 provide further support for underdense reflections.

The magnetic field-aligned nature of exploded traces suggests that the irregularities are also field-aligned. This would imply that reflections (underdense or overdense) should show considerable aspect sensitivity. Indeed, the ISIS satellites appear to principly see irregularities existing in the east-west plane through the satellite and not the north-south plane. Figure 8, for instance, shows two separate exploded traces. Based on successive

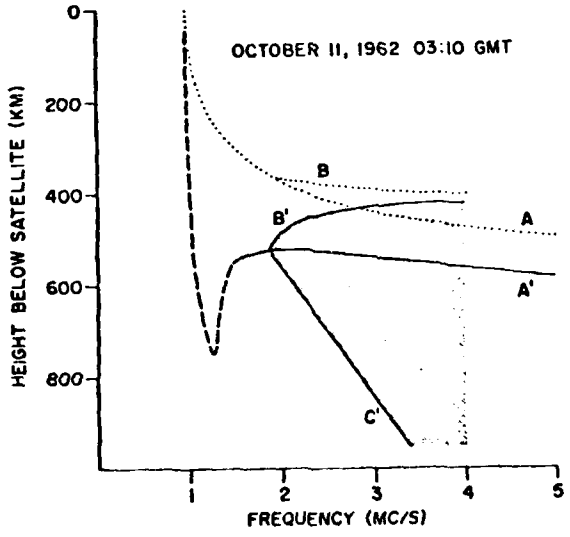

Figure 15. Analysis of an exploded trace appearing on an early Alouette ionogram. The virtual height data is shown by the solid lines, dashed lines, and shading. The true height profile is shown as a dotted line assuming all the reflections to be from overdense ionization (not necessarily correct). (From Reference 22.)

ionograms, it is clear that these traces are separated east-west and have a very long north-south extent. Because Figure 8 does not show a large range extent for either trace but clearly shows their east-west separation, it appears that aspect sensitive reflection from field-aligned irregularities is occurring.

Within the last two years, other investigators have studied exploded traces and proposed that these are, in fact, "bubbles" rising from the bottomside of the F-layer.[26,27,28] Such bubbles would be enormous with diameters of 30 to 60 km and lengths of hundreds of kilometers along the magnetic field. Unfortunately, the evidence from ISIS (or the older Alouette satellites) is chiefly circumstantial. Exploded traces exist in the same time frame and geographical region as bubbles are believed to exist. Furthermore, bubbles involve depleted electron densities and potential irregularities in the vicinity of the bubble while exploded traces involve irregularities and potential depletions. Hence, exploded traces suggest and are probably related to bubbles. However, ISIS does not provide convincing information to prove that large scale bite-outs in electron density or substantial depletions exist. Furthermore, ISIS does not clearly establish whether such bubbles or exploded traces are rising.

Perhaps it would be best to characterize the features producing exploded traces as equatorial "plumes." Large irregularity patches are accurately referred to as plumes but may or may not involve bubbles.

3.3 MAGNETIC FIELD-ALIGNED DUCTS

Reference 28 uses the conjugate echoes observed by ISIS to argue for bubbles. While it has been known for years that these echoes are due to field-aligned tubes of depleted ionization[8,9], it is misleading to use ISIS data to call them bubbles and to thereby imply a rising nature. These ducts exist, both inside and outside of the anomaly region shown in Figure 14 and can occur at times of day when no bubbles are ever seen. Some of the ducts

may be remnants of bubbles. Other ducts, especially those along magnetic L-shells with $L \gtrsim 1.2$ are probably not remnants of bubbles but may be caused by some of the same processes involved with bubbles.

Reference 26 shows that the ducts observed by topside sounders increase in number after sunset and steadily decrease during the daytime. This diurnal dependence of the ducts as well as their location near the magnetic equator suggests that they are at least a part of the same process producing bubbles. The time dependence of ducts is somewhat different for $L \gtrsim 1.2$ than for $L \lesssim 1.2$. $L \lesssim 1.2$ corresponds approximately to the anomaly region of Figure 14 while $L \gtrsim 1.2$ corresponds to the volume outside this region. According to Reference 27, $L \gtrsim 1.2$ are formed between 2000 and 2200 local time and then remain essentially constant throughout the night. In contrast, those ducts with $L \lesssim 1.2$ increasingly appear from 2000 to 0200 local time and decrease slowly thereafter. These appear to be associated with bubbles. They may be the late time high altitude remnants of a large bubble that has risen from the bottomside and broken into many "anti-striations" or ducts.

The ducts occurring outside the anomaly region (those with $L \gtrsim 1.2$) form before any activity is observed in the anomaly region. ISIS II data from Kwajalein in 1978 shows many ducts outside of the anomaly region as early as 1900 local time, while the anomaly region itself is still smooth. Table 8 shows this effect. Multiple echoes and conjugate echoes are interpreted as evidence of ducts and exploded traces as evidence of plumes (see Section 2).

Because ducts with $L \gtrsim 1.2$ form or at least start to form before plumes develop in the anomaly region, these ducts are not thought to be remnants of bubbles. But their formation in the early evening suggests that they may have formation processes in common with bubbles. References 26 and 29 provide an explanation for the formation of these ducts. Mismatched Pedersen

conductivities in the conjugate E-regions are thought to give rise to field-aligned currents which generate significant irregularities in the E-region at night when the E-region density is low. These irregularities are then transferred to the F-region by electric fields until the formation of a deep E-F density valley. This valley forms near 2200 when the number of ducts with $L \gtrsim 1.2$ is observed to level off.

Another process that may be significant in triggering and perhaps amplifying both duct formation for $L \gtrsim 1.2$, bubble formation, and bubble breakup into ducts with $L \lesssim 1.2$ involves acoustic gravity waves, traveling ionospheric disturbances (TID's), and the spatial resonance mechanism.[25,30,31] Acoustic gravity waves constitute a spectrum of geophysical noise capable of driving a roughly uniform power spectrum of TIDs with scales extending from the radius of the earth down to the atmospheric scale height. At shorter scales, the spectrum of TIDs is thought to decrease in strength creating a spectrum of field-aligned plasma turbulence below the mean free path of the neutral atmosphere. Such a spectrum of TIDs could provide the perturbation necessary to trigger an appropriate instability mechanism in the equatorial ionosphere. Reference 31 suggests that the spatial resonance mechanism, which occurs when the plasma drift velocity matches the acoustic gravity wave phase velocity, may contribute to the formation of the drifting plumes observed by both sounders and radars. The non-linear break-up of resonance steepened TIDs may give rise to the quasi-periodic structures (multiple echoes) seen in equatorial ionograms.

3.4 BUBBLES

Bubbles have been discussed extensively in the literature in recent years. Reference 32 provided the first strong evidence that rising bite-outs do indeed exist using data from the Atmospheric Explorer satellites. This data showed large bite-outs in electron density on the bottomside of the F-layer, upward movement of ions within the bubbles, and ion constituents

typical of lower altitudes. Radar observations of equatorial irregularities from Jicamarca, Peru suggest that the irregularities form first near the bottom of the F-layer and over a period of hours propagate to the topside.[33] In this latter case, upward motion is inferred but not measured. The process producing the irregularities appears to move upward. Perhaps this process involves ascending bubbles or perhaps some other triggering mechanism that is delayed at higher altitudes.

Since this basic work on bubbles, considerable supporting evidence has been published. References 34 and 35 show computer simulations of bubbles forming on the very steep bottomside of the F-layer due to Rayleigh-Taylor instabilities and buoyantly rising through the peak of the layer into the topside. Data from the Altair radar on Kwajalein Atoll appears to show both the formation of the bite-outs on the bottomside and the subsequent development of a plume of irregularities.[36] The rate of the bubble rise is dependent on ionospheric parameters as well as on the density depletion within the bubble. Reference 37 discusses plasma instabilities leading to bubbles, and Reference 38 further discusses the rate of bubble rise. Reference 39 presents additional experimental evidence for field-aligned bite-outs and perhaps bubbles.

Although some bubbles clearly rise rapidly, others may rise slowly or not at all. References 34, 35, and 38 show that a great range of vertical rise velocities are possible including very small velocities. Of course, once the bubble has reached an equilibrium altitude, it cannot rise further.

The Altair radar in operation during the same period as for the observations reported here often saw little or no vertical drift of the irregularities associated with bubbles but a strong eastward drift of the irregularities at 60 to 70 m/sec.[40] This correlates approximately with the eastward neutral wind observed during the same period.[41] While the data from ISIS cannot directly provide information on the drift of plumes, it can yield information when compared with ground based observations. On several occasions, exploded traces or plumes were spotted to the west of Kwajalein by

ISIS and then later observed by the Altair radar or the Digisonde on Kwajalein. The calculated rate of eastward drift was similar to that measured by Altair.

The fact that exploded traces are most frequently observed along the magnetic field L-shell bounding the anomaly region and infrequently on lower L-shells has potential implications for bubbles. If bubbles are the cause of such traces then either 1) most bubbles rise from the bottomside near 15°N or 15°S magnetic latitude and are less prevalent at the magnetic equator or 2) bubbles rise rapidly at all latitudes within the anomaly region and slow their ascent or stabilize on the L-shell bounding the region. In either case, the strongest scintillations and highest density plumes would be expected at the north or south boundary of the anomaly region where the exploded traces penetrate the peak of the F-layer. Indeed, ISIS frequently observes the strongest scintillation here. This is also where both the Jicamarca and Altair radars observe large backscatter plumes.

3.5 VERTICAL IONOSPHERIC DRIFTS

By examining ISIS ionograms from satellite passes at different local times during the evening, it is possible to infer the gross vertical movement of the ionosphere. Typical early evening ionograms such as Figure 2 taken near 1900 local time show a high smooth topside ionosphere. Later ionograms such as Figures 8 and 9 show a much lower smooth topside broken by an exploded trace. It appears that sinking of the ionosphere and exploded traces or plumes go together. The top of many exploded traces occur near the altitude where the topside was earlier.

Gross movement of the equatorial ionosphere has been well documented. Data from Reference 42 shows the rise of the equatorial ionosphere near sunset (1800 LT) and then its steep fall at 2000 LT. The 1800 rise corresponds with the development of a strong anomaly, and the 2000 fall corres-

ponds with the onset of exploded traces and spread. The rapid sinking of the ionosphere appears related to the rising of bubbles and the formation of plumes.

The sinking of the ionosphere alone has some potential for creating plumes without the need for bubbles. Near 2000 LT the topside is in a transition from a high and rising ionosphere to the west of the observer to a low and sinking ionosphere to the east. Possibly the sinking of the topside occurring at this time is also somewhat non-uniform. Plasma left high can mix with adjacent lower density plasma via the gradient drift instability known to occur in barium ion clouds. Cross-field neutral winds, which are known to exist,[41] are necessary to drive the incompressible mixing of high and low density plasma. To couple the neutral wind to the plasma, a sufficiently large ion-neutral collision frequency is necessary. Because the ion-neutral collision frequency is proportional to the neutral density, neutral winds will be most effective at driving a gradient drift instability in the lower portions of the F-region. Reference 43 has discussed this instability as a possibility for the development of bottomside spread.

Although gravity tends to stabilize the sinking topside, the possibility that a wind driven gradient drift instability plays a part in multiplying irregularities is significant. Even rising bubbles may be broken up by horizontal neutral winds both above and below the peak of the F-layer.

3.6 CORRELATION WITH SOLAR ACTIVITY

Because the 1978 ISIS observations show a considerably greater incidence of exploded traces and severe spread than the 1977 observations, it is interesting to speculate whether this had anything to do with the increase in solar activity observed in recent years. Table 8 shows monthly average Zürich sunspot numbers for selected months.[44] The summer of 1978 had about twice the number of sunspots (and therefore twice the solar activity) compared with the summer of 1977. Also, the data taken during the first part of the

Kwajalein campaign in August 1977 showed much less ionospheric activity than that taken in late August. This correlates with the moderate increase in solar activity noted.

The connection between solar activity and exploded traces appears to come from vertical ionospheric drifts. As mentioned earlier, these drifts appear to precipitate exploded traces. Reference 42 shows that early evening vertical ionospheric drifts are strongly dependent on the solar cycle. These drifts are pronounced at solar maximum and hardly visible during solar minimum. Hence, the drifts were probably milder in 1977 than 1978, implying fewer exploded traces in 1977 than 1978. This was observed.

The foregoing are conclusions presented as preliminary conclusions. Perhaps the strongest conclusion to be drawn is that the ISIS data contains a great deal of information on ionospheric conditions relevant to scintillations and warrants further study.

Table 7. Monthly average Zürich sunspot numbers for selected months. (from Reference 44)

Date		Zürich Sunspot Number
March	1977	8.0
April		13.2
May		18.4
June		38.4
July		21.2
August		29.9
September		44.1
April	1978	94.7
May		79.3
June		94.1
July		68.4
August		56.7
September		137.3
October		122.8

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APPENDIX
TABLE OF ALL ISIS PASSES

Using the terminology developed in Section 2, Table 8 shows the minute by minute nature of each satellite pass recorded. For 1977, the table includes satellite location and ionogram description as a function of time. For 1978, signal scintillation information is included. The location of the point where the telemetry signal penetrated the peak of the F-layer is indicated, assuming this peak to be at a 300 km altitude.

OBJECT: 5669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 6 AUGUST 1977 DAY 218

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#218#	1	2	0	35.95	160.93	915		
#218#	1	3	0	32.27	160.83	970	SM, ME, ER	7.3
#218#	1	4	0	28.65	160.71	1028	SM, ME, ER	8.0
#218#	1	5	0	25.08	160.58	1088	SM, ME, ER	8.8
#218#	1	6	0	21.57	160.44	1151	SM, ME, CE(1.8), ER	9.0
#218#	1	7	0	18.12	160.30	1217	SM	9.0
#218#	1	8	0	14.73	160.15	1284	SM, ME, ER	8.9
#218#	1	9	0	11.39	159.99	1353	SM, ER	~8.5
#218#	1	10	0	8.12	159.83	1423	SM, ER	7.5
#218#	1	11	0	4.90	159.67	1494	SM, ER	>6.0
#218#	1	12	0	1.74	159.51	1566	SM, CE(1.6)	9.4
#218#	1	13	0	-1.36	159.34	1639	SM, ER	10.3
#218#	1	14	0	-4.40	159.17	1712	SM,.ER	10.1
#218#	1	15	0	-7.39	159.00	1786	SM, ER	9.0
#218#	1	16	0	-10.33	158.83	1859	SM, ME	~9.0
#218#	1	17	0	-13.21	158.66	1932	SM, ME, ER	7.5
#218#	1	18	0	-16.04	158.50	2005		
#218#	1	19	0	-18.83	158.33	2078		
#218#	1	20	0	-21.56	158.16	2150		
#218#	1	21	0	-24.25	158.00	2221		
#218#	1	22	0	-26.89	157.83	2290		
#218#	1	23	0	-29.49	157.67	2359		
#218#	1	24	0	-32.04	157.52	2427		

OBJECT: 5669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 6 AUGUST 1977 DAY 218

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
218	12 58 0	-36.58	161.36	2913		
218	12 59 0	-34.29	161.21	2859		
218	13 0 0	-31.97	161.04	2803		
218	13 1 0	-29.62	160.88	2745	SM, ME, ER	4.5
218	13 2 0	-27.24	160.71	2685	SM, ME	4.0
218	13 3 0	-24.83	160.54	2623	SM, ME	4.5
218	13 4 0	-22.38	160.37	2559	SM, ME, ER	~5.0
218	13 5 0	-19.89	160.20	2495	SM, ME	~5.0
218	13 6 0	-17.37	160.02	2428	SM, ME, ER	~5.0
218	13 7 0	-14.81	159.85	2361	SM, ME, ER	4.5
218	13 8 0	-12.21	159.67	2292	SM, ME	>3.0
218	13 9 0	-9.56	159.50	2222	SM, ME	5.5
218	13 10 0	-6.87	159.32	2151	SM, ME, CE(1.3), ER	~5.0
218	13 11 0	-4.13	159.14	2079	SM, ME	≥8.0
218	13 12 0	-1.35	158.97	2006	SM, ME, CE(1.1)	≥4.0
218	13 13 0	1.49	158.80	1933	SP, STV, ME, RSP, ET(2)	≥5.0
218	13 14 0	4.37	158.62	1860	SP, STV, ME	≥6.0
218	13 15 0	7.31	158.45	1786	SP, STV	≥6.0
218	13 16 0	10.30	158.28	1713	SP, STV, CE(1.7)	≥6.0
218	13 17 0	13.34	158.12	1640	SP, STV, ME	≥5.0
218	13 18 0	16.44	157.96	1567	SP, STV, ME, RSP	≥3.0
218	13 19 0	19.59	157.80	1495	SP, STV, ME	>3.0
218	13 20 0	22.81	157.65	1423	SM, ME	>3.0
218	13 21 0	26.08	157.51	1353	SM, ME	>3.0
218	13 22 0	29.41	157.37	1284	SM, ME	~4.0
218	13 23 0	32.79	157.25	1217	SM, ME, ER	≥3.5
218	13 24 0	36.23	157.13	1151	SM, ME	≥3.5

ORBIT: 3669 1515 I PASS SUMMARY FOR ROI NAMUR FOR 7 AUGUST 1977 DAY 219

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	
#219#	12 30 0	-35.98	167.31	2853	
#219#	12 31 0	-33.66	167.16	2796	
#219#	12 32 0	-31.31	167.00	2738	
#219#	12 33 0	-28.94	166.83	2678	
#219#	12 34 0	-26.51	166.66	2616	
#219#	12 35 0	-24.06	166.50	2552	
#219#	12 36 0	-21.57	166.32	2487	
#219#	12 37 0	-19.05	166.15	2421	
#219#	12 38 0	-16.48	165.98	2353	
#219#	12 39 0	-13.87	165.80	2284	
#219#	12 40 0	-11.22	165.63	2214	
#219#	12 41 0	-8.53	165.45	2143	
#219#	12 42 0	-5.79	165.28	2071	TIMING
#219#	12 43 0	-3.00	165.10	1998	INFORMATION
#219#	12 44 0	-0.16	164.93	1925	MISSING
#219#	12 45 0	2.73	164.76	1852	
#219#	12 46 0	5.67	164.59	1779	
#219#	12 47 0	8.67	164.42	1705	
#219#	12 48 0	11.72	164.25	1632	
#219#	12 49 0	14.83	164.09	1559	
#219#	12 50 0	17.99	163.93	1487	
#219#	12 51 0	21.21	163.78	1416	
#219#	12 52 0	24.49	163.63	1345	
#219#	12 53 0	27.82	163.50	1277	
#219#	12 54 0	31.21	163.37	1210	
#219#	12 55 0	34.66	163.25	1145	
#219#	12 56 0	38.17	163.14	1082	

OBJECT: 4669 ISIS I PASS SUMMARY FOR KOL NAMUR FOR 8 AUGUST 1977 DAY 220

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT Km	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
220	0 5 0	35.38	173.06	982		
220	0 6 0	31.77	172.95	1040		
220	0 7 0	28.22	172.83	1102		
220	0 8 0	24.72	172.70	1165	SM, ER	7.0
220	0 9 0	21.29	172.56	1231	SM	8.0
220	0 10 0	17.91	172.41	1298	SM	9.0
220	0 11 0	14.59	172.26	1368	SM, ER	8.6
220	0 12 0	11.32	172.10	1438	SM, ER	7.9
220	0 13 0	8.12	171.94	1510	SM, ER	7.0
220	0 14 0	4.97	171.77	1582	SM, ER	7.0
220	0 15 0	1.88	171.61	1655	SM, ER	7.3
220	0 16 0	-1.15	171.44	1728	SM, ER	9.1
220	0 17 0	-4.13	171.27	1802	SM	9.5
220	0 18 0	-7.05	171.10	1875	SM	>10.0
220	0 19 0	-9.93	170.93	1948	SM	>10.0
220	0 20 0	-12.75	170.75	2021	SM, ME	>10.0
220	0 21 0	-15.52	170.58	2094	SM, ME	8.5
220	0 22 0	-18.24	170.41	2165	SM, ME, CE(1.3), ER	~7.5
220	0 23 0	-20.92	170.25	2236	SM, ME, ER	6.5
220	0 24 0	-23.56	170.08	2306	SM, ME, ER	6.5
220	0 25 0	-26.15	169.91	2374	SM, ME, CE(1.3)	6.0
220	0 26 0	-28.70	169.75	2442	SM, ME	>6.0
220	0 27 0	-31.21	169.59	2508	SM	>7.0
220	0 28 0	-33.68	169.43	2572	SM	>6.0

OBJECT: 4569 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 8 AUGUST 1977 DAY 220

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
220	12 2 0	-35.35	173.27	2790	SM, ME	~4.0
220	12 3 0	-33.00	173.11	2731	SM, ME	3.5
220	12 4 0	-30.61	172.95	2671	SM, ME	3.5
220	12 5 0	-28.19	172.78	2609	SM, ME	>3.0
220	12 6 0	-25.74	172.62	2545	SM, ME	3.3
220	12 7 0	-23.24	172.45	2480	SM, ME	3.3
220	12 8 0	-20.71	172.28	2413	SM, ME	3.3
220	12 9 0	-18.14	172.10	2345	SM, ME, ER	3.1
220	12 10 0	-15.53	171.93	2276	SM, ME, ER	>3.0
220	12 11 0	-12.88	171.76	2206	SM, ME	~4.0
220	12 12 0	-10.18	171.58	2135	SM, ME	>5.0
220	12 13 0	-7.43	171.41	2063	SM	6.5
220	12 14 0	-4.64	171.23	1990	SM, ME	6.5
220	12 15 0	-1.79	171.06	1917	SM	~6.5
220	12 16 0	1.10	170.89	1844	SM, RSP, ME	>6.0
220	12 17 0	4.05	170.72	1770	SM, RSP	6.7
220	12 18 0	7.05	170.55	1697	SM, WSP	6.5
220	12 19 0	10.11	170.38	1624	SM, ME, WSP, ER	6.0
220	12 20 0	13.22	170.22	1551	SM, WSP, ER	~6.0
220	12 21 0	16.39	170.06	1479	SM, ME, ER	5.7
220	12 22 0	19.62	169.91	1408	SM, ME	5.6
220	12 23 0	22.90	169.76	1338	SM, ME, ER	5.5
220	12 24 0	26.24	169.62	1269	SM, ME, SSP	5.0
220	12 25 0	29.64	169.49	1203	SM, ME, ER	4.5
220	12 26 0	33.10	169.36	1138	SM, ME, ER	4.6
220	12 27 0	36.62	169.26	1075	SM, ME, ER	4.6

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR ROT NAMUR FOR 9 AUGUST 1977 DAY 221

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
221	11 34 0	-34.67	179.22	2725		
221	11 35 0	-32.28	179.06	2664		
221	11 36 0	-29.86	178.90	2602		
221	11 37 0	-27.40	178.74	2538		
221	11 38 0	-24.91	178.57	2472		
221	11 39 0	-22.38	178.40	2406		
221	11 40 0	-19.80	178.23	2338		
221	11 41 0	-17.19	178.06	2268		
221	11 42 0	-14.53	177.89	2198		
221	11 43 0	-11.82	177.71	2127		
221	11 44 0	-9.07	177.54	2055	SM, ME	5.2
221	11 45 0	-6.27	177.37	1982	SM, ME	>7.0
221	11 46 0	-3.42	177.19	1909	SM, ME	>6.0
221	11 47 0	-0.52	177.02	1836	SM, RSP, ET(3.4)	>5.0
221	11 48 0	2.43	176.85	1762	SM, RSP, ET(3.2), ER	>6.0
221	11 49 0	5.44	176.68	1689	SM	>6.0
221	11 50 0	8.51	176.52	1615	SM, ME	>6.0
221	11 51 0	11.62	176.35	1543	SM, ME, ER	6.1
221	11 52 0	14.80	176.19	1471	SM, ME, ER	5.5
221	11 53 0	18.03	176.04	1400	SM, ME, ER	5.5
221	11 54 0	21.33	175.89	1330	SM, ME, ER	5.3
221	11 55 0	24.68	175.74	1262	SM, ME, ER	5.0
221	11 56 0	28.08	175.61	1195	SM, ME, ER	4.8
221	11 57 0	31.55	175.48	1131		
221	11 58 0	35.07	175.37	1068		
221	11 59 0	38.65	175.27	1008		

OBJECT: 4669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 9 AUGUST 1977 DAY 221

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
221	13	44	0	-30.68	146.78	2618		
221	13	45	0	-28.23	146.61	2555		
221	13	46	0	-25.74	146.45	2490		
221	13	47	0	-23.22	146.28	2423		
221	13	48	0	-20.66	146.11	2356		
221	13	49	0	-18.05	145.94	2287		
221	13	50	0	-15.41	145.76	2217		
221	13	51	0	-12.71	145.59	2146	SM, ME	4.0
221	13	52	0	-9.97	145.42	2074	SM, ME, ER	3.9
221	13	53	0	-7.19	145.24	2001	SM, ME	4.0
221	13	54	0	-4.35	145.07	1928	SM, ME, WSP	4.2
221	13	55	0	-1.46	144.90	1855	SM, ME, CE(1.5), WSP, ER	4.0
221	13	56	0	1.48	144.73	1781	SM, ME, CE(1.3), WSP	5.0
221	13	57	0	4.47	144.56	1708	SM, ME, CE(1.4), WSP	>4.0
221	13	58	0	7.52	144.39	1635	SM, ME, CE(1.4), ER	>5.0
221	13	59	0	10.62	144.23	1562	SM, ME	>3.0
221	14	0	0	13.78	144.07	1490	SM, ME, WSP	~3.5
221	14	1	0	17.00	143.91	1418	SM, ME, CE(1.2), ER	3.6
221	14	2	0	20.28	143.76	1348	SM, ME, CE(1.7), SP	~4.0
221	14	3	0	23.62	143.61	1280	SP, ME, CE(1.7)	>3.0
221	14	4	0	27.01	143.47	1212	SP, ME, CE(1.5)	>3.0
221	14	5	0	30.46	143.35	1147		

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KOI NAMUR FOR 10 AUGUST 1977 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
222	1 16 0	35.97	153.04	1038		
222	1 17 0	32.42	152.93	1099		
222	1 18 0	28.92	152.81	1163		
222	1 19 0	25.49	152.68	1228		
222	1 20 0	22.11	152.54	1296		
222	1 21 0	18.78	152.39	1365	SM, ER	8.7
222	1 22 0	15.52	152.24	1435	SM, ER	9.4
222	1 23 0	12.32	152.08	1507	SM, ER	9.8
222	1 24 0	9.17	151.91	1579	SM	>8.0
222	1 25 0	6.08	151.75	1652	SM	10.2
222	1 26 0	3.04	151.58	1725	SM, ER	10.9
222	1 27 0	0.06	151.41	1799	SM, ER	11.0
222	1 28 0	-2.87	151.24	1872	SM	9.1
222	1 29 0	-5.74	151.07	1946	SM, ME	9.8
222	1 30 0	-8.57	150.89	2019	SM, ME, ER	8.9
222	1 31 0	-11.34	150.72	2091	SM, ME	6.9
222	1 32 0	-14.07	150.55	2163	SM, ME, ER	7.9
222	1 33 0	-16.75	150.38	2233	SM, ER	8.5
222	1 34 0	-19.39	150.20	2303	SM, ME	8.2
222	1 35 0	-21.98	150.03	2372	SM, ME, ER	7.0
222	1 36 0	-24.53	149.87	2439	SM, ME, ER	>6.0
222	1 37 0	-27.05	149.70	2505	SM, ME	>4.0
222	1 38 0	-29.52	149.54	2570	SM, ME	≥6.0
222	1 39 0	-31.96	149.37	2633		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 10 AUGUST 1977 DAY 222

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
222	11	7	0	-31.53	-174.98	2594		
222	11	8	0	-29.06	-175.14	2530		
222	11	9	0	-26.57	-175.31	2465		
222	11	10	0	-24.03	-175.47	2398		
222	11	11	0	-21.45	-175.64	2330		
222	11	12	0	-18.83	-175.81	2260		
222	11	13	0	-16.17	-175.98	2190		
222	11	14	0	-13.46	-176.16	2118	SM, ME	>3.0
222	11	15	0	-10.70	-176.33	2046	SM, ME	~5.0
222	11	16	0	-7.90	-176.50	1974	SM, ME	5.5
222	11	17	0	-5.04	-176.67	1901	SM, ME, CE(1.5)	~6.0
222	11	18	0	-2.13	-176.84	1827	SP, STV, ET(3.0)	>7.0
222	11	19	0	0.83	-177.01	1754	SP, STV, ET(~3.0)	≥6.0
222	11	20	0	3.84	-177.18	1680	SP, STV, ET(2.9)	≥6.5
222	11	21	0	6.91	-177.35	1607	SP, STV, ET(2.9)	≥5.0
222	11	22	0	10.04	-177.51	1534	WSP, ME, ER	>6.0
222	11	23	0	13.22	-177.67	1463	WSP, ME, ER	≥4.0
222	11	24	0	16.46	-177.83	1392	SP, ME, ER	≥3.0
222	11	25	0	19.76	-177.98	1322	SM, ME, CE(1.5)	5.5
222	11	26	0	23.12	-178.13	1254	SM, ME	~5.0
222	11	27	0	26.53	-178.27	1188	SM, ME, ER	4.4
222	11	28	0	30.01	-178.40	1123	SM, ME	~4.0
222	11	29	0	33.54	-178.51	1061	SM, ME	>3.0

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 10 AUGUST 1977 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
222	13 15 0	-32.34	152.89	2611		
222	13 16 0	-29.89	152.73	2547		
222	13 17 0	-27.40	152.57	2482		
222	13 18 0	-24.87	152.40	2415		
222	13 19 0	-22.31	152.23	2348		
222	13 20 0	-19.70	152.06	2279		
222	13 21 0	-17.05	151.89	2208		
222	13 22 0	-14.35	151.72	2137	SSP, ME, ER	~4.0
222	13 23 0	-11.61	151.55	2065	SM, ME	>3.0
222	13 24 0	-8.81	151.38	1993	SM, ME, CE(1.5), ER	~4.0
222	13 25 0	-5.97	151.20	1920	WSP, ME, CE(1.4)	>3.5
222	13 26 0	-3.08	151.03	1846	WSP, ME, ER	>3.0
222	13 27 0	-0.13	150.86	1773	SM, SSP, ME, CE(1.3)	>5.0
222	13 28 0	2.87	150.69	1699	SM, ME	>5.0
222	13 29 0	5.92	150.53	1626	SM, CE(2)	>4.0
222	13 30 0	9.03	150.36	1553	SM, ME	>3.0
222	13 31 0	12.20	150.20	1481	SP, ME, ER	~3.5
222	13 32 0	15.43	150.04	1410	SM, ME, WSP, ER	~3.5
222	13 33 0	18.71	149.89	1340	SM, ME, CE(1.5)	>3.5
222	13 34 0	22.06	149.74	1272	SM, ME	>4.5
222	13 35 0	25.46	149.60	1205	SP, ME, ER	~5.0
222	13 36 0	28.91	149.47	1140		
222	13 37 0	32.43	149.35	1077		

OBJECT: 5669 ISIS 1 PASS SUMMARY FOR ROI NAMUR FOR 11 AUGUST 1977 DAY 223

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
223	0	47	0	37.50	159.16	1045		
223	0	48	0	33.95	159.05	1106		
223	0	49	0	30.47	158.93	1170	SM	>6.0
223	0	50	0	27.04	158.80	1236	SM	8.7
223	0	51	0	23.66	158.67	1304	SM	>9.0
223	0	52	0	20.35	158.52	1373	SM	9.9
223	0	53	0	17.09	158.37	1444	SM, ER	9.6
223	0	54	0	13.90	158.21	1515	SM, ER	8.7
223	0	55	0	10.76	158.05	1588	SM, ER	8.5
223	0	56	0	7.67	157.88	1661	SM, ER	8.2
223	0	57	0	4.64	157.72	1734	SM	8.9
223	0	58	0	1.67	157.55	1808	SM	9.7
223	0	59	0	-1.25	157.37	1881	SM	10.0
223	1	0	0	-4.12	157.20	1954		
223	1	1	0	-6.94	157.03	2027		
223	1	2	0	-9.71	156.85	2099		
223	1	3	0	-12.43	156.68	2171		
223	1	4	0	-15.11	156.51	2242		
223	1	5	0	-17.74	156.33	2311		
223	1	6	0	-20.33	156.16	2380		
223	1	7	0	-22.88	155.99	2447		
223	1	8	0	-25.39	155.82	2513		
223	1	9	0	-27.86	155.65	2578		
223	1	10	0	-30.30	155.49	2640		
223	1	11	0	-32.70	155.33	2702		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 11 AUGUST 1977 DAY 223

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
223	12	46	0	-34.00	159.00	2603		
223	12	47	0	-31.54	158.85	2539		
223	12	48	0	-29.05	158.69	2474		
223	12	49	0	-26.52	158.52	2407		
223	12	50	0	-23.95	158.36	2339		
223	12	51	0	-21.34	158.19	2270		
223	12	52	0	-18.68	158.02	2200		
223	12	53	0	-15.98	157.85	2129		
223	12	54	0	-13.23	157.68	2057	SM, ME, CE(1.5), ER	~4.0
223	12	55	0	-10.43	157.51	1984	SM, ME, CE(1.8), ER	4.0
223	12	56	0	-7.58	157.34	1911	SM, ME, ER	~5.0
223	12	57	0	-4.68	157.17	1838	SM, ME	>6.0
223	12	58	0	-1.73	157.00	1764	SM, ME	>6.0
223	12	59	0	1.27	156.83	1691	SM, ME	>6.0
223	13	0	0	4.34	156.66	1618	SM, ME	>5.0
223	13	1	0	7.45	156.49	1545	SM, ME	>7.5
223	13	2	0	10.63	156.33	1473	SM, ME, ER	~7.0
223	13	3	0	13.86	156.17	1402	SM, ME	4.8
223	13	4	0	17.15	156.02	1332	SM, ME	>4.5
223	13	5	0	20.50	155.87	1264	SM, ME	>5.0
223	13	6	0	23.91	155.73	1197	SM, ME	~5.8
223	13	7	0	27.38	155.59	1132	SM, ME	>5.0
223	13	8	0	30.90	155.47	1070		
223	13	9	0	34.48	155.35	1010		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 12 AUGUST 1977 DAY 224

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
224	0 18 0	39.01	165.27	1052		
224	0 19 0	35.48	165.17	1114		
224	0 20 0	32.00	165.05	1178		
224	0 21 0	28.58	164.93	1244		
224	0 22 0	25.21	164.79	1312	SM	9.1
224	0 23 0	21.91	164.65	1381	SM, ER	9.3
224	0 24 0	18.66	164.50	1452	SM	9.4
224	0 25 0	15.47	164.34	1524	SM	9.3
224	0 26 0	12.34	164.18	1596	SM	9.7
224	0 27 0	9.26	164.02	1669	SM, CE(1.4)	9.7
224	0 28 0	6.24	163.85	1743	SM, ER	9.5
224	0 29 0	3.27	163.68	1816	SM	9.4
224	0 30 0	0.35	163.51	1890	SM, ER	9.6
224	0 31 0	-2.51	163.33	1963	SM	>10.0
224	0 32 0	-5.32	163.16	2036	SM	>10.0
224	0 33 0	-8.09	162.99	2108	SM	>10.0
224	0 34 0	-10.80	162.81	2180	SM	9.6
224	0 35 0	-13.48	162.64	2250		
224	0 36 0	-16.10	162.46	2320		
224	0 37 0	-18.69	162.29	2388		
224	0 38 0	-21.23	162.12	2455		
224	0 39 0	-23.74	161.94	2521		
224	0 40 0	-26.21	161.77	2585		
224	0 41 0	-28.64	161.61	2648		
224	0 42 0	-31.04	161.44	2709		
224	0 43 0	-33.41	161.28	2768		
224	0 44 0	-35.74	161.13	2826		

OBJECT: 3669 ISIS I PASS SUMMARY FOR RDI NAMUR FOR 12 AUGUST 1977 DAY 224

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#224#	12	18	0	-33.19	164.96	2532		
#224#	12	19	0	-30.69	164.81	2466		
#224#	12	20	0	-28.16	164.65	2399		
#224#	12	21	0	-25.58	164.48	2331		
#224#	12	22	0	-22.97	164.32	2262		
#224#	12	23	0	-20.31	164.15	2191		
#224#	12	24	0	-17.60	163.98	2120		
#224#	12	25	0	-14.84	163.81	2048		
#224#	12	26	0	-12.04	163.64	1975		
#224#	12	27	0	-9.19	163.47	1902	SM, ME	4.9
#224#	12	28	0	-6.28	163.30	1829	SM, ME, ER	6.5
#224#	12	29	0	-3.32	163.13	1755	SP, ME, ET(3.0)	>5.0
#224#	12	30	0	-0.31	162.96	1682	VSP, ME, ET(2.0)	>5.0
#224#	12	31	0	2.76	162.79	1609	VSP, ME, ET(1.8)	>5.0
#224#	12	32	0	5.88	162.63	1536	VSP, STV, ME, ET(1.8)	>7.0
#224#	12	33	0	9.07	162.47	1464	VSP, STV, ME, ET(2.1), RSP	>7.0
#224#	12	34	0	12.31	162.31	1393	VSP, STV, ME, ET(2.5), RSP	>6.0
#224#	12	35	0	15.61	162.15	1324	SP, STV, ME, ET(3.5), RSP	>5.0
#224#	12	36	0	18.96	162.00	1256	SM, ME	>5.5
#224#	12	37	0	22.38	161.85	1189	SM, ME	>5.0
#224#	12	38	0	25.85	161.72	1125	VSP, ME	>4.0
#224#	12	39	0	29.39	161.59	1063	SP, ME, ER	>5.0
#224#	12	40	0	32.97	161.47	1003	SP, ME, CE(1.7)	~4.8
#224#	12	41	0	36.62	161.37	946	SM, ME, ER	5.5

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 12 AUGUST 1977 DAY 224

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
224	23 50 0	37.00	171.28	1121		
224	23 51 0	33.53	171.17	1186		
224	23 52 0	30.11	171.05	1252		
224	23 53 0	26.76	170.92	1320	SM, ER	9.5
224	23 54 0	23.46	170.78	1390	SM	~11.0
224	23 55 0	20.22	170.63	1461	SM	11.3
224	23 56 0	17.04	170.47	1533	SM	10.7
224	23 57 0	13.91	170.31	1605	SM	>9.0
224	23 58 0	10.84	170.15	1678	SM, ER	8.6
224	23 59 0	7.82	169.98	1752	SM, ER	7.2
225	0 0 0	4.86	169.81	1825	SM, ER	>6.0
225	0 1 0	1.95	169.64	1899	SM, ER	7.2
225	0 2 0	-0.90	169.47	1972	SM	7.8
225	0 3 0	-3.71	169.29	2045	SM	10.0
225	0 4 0	-6.47	169.12	2117	SM	11.0
225	0 5 0	-9.18	168.94	2188	SM	12.0
225	0 6 0	-11.85	168.77	2259	SM	>10.5
225	0 7 0	-14.47	168.59	2328	SM	≤10.0
225	0 8 0	-17.05	168.42	2396	SM, ER	9.6
225	0 9 0	-19.59	168.24	2463	SM, ER	8.0
225	0 10 0	-22.09	168.07	2529	SM, ME, ER	7.0
225	0 11 0	-24.56	167.90	2593	M	
225	0 12 0	-26.99	167.73	2656	M	
225	0 13 0	-29.38	167.56	2716	M	
225	0 14 0	-31.75	167.40	2775	SM, ME, ER	~7.0
225	0 15 0	-34.08	167.24	2833		
225	0 16 0	-36.38	167.08	2888		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 13 AUGUST 1977 DAY 225

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#225#	11	50	0	-32.33	170.92	2458		
#225#	11	51	0	-29.79	170.76	2391		
#225#	11	52	0	-27.21	170.60	2322		
#225#	11	53	0	-24.59	170.44	2253		
#225#	11	54	0	-21.92	170.28	2182		
#225#	11	55	0	-19.21	170.11	2111	SM, ME, ER	~4.0
#225#	11	56	0	-16.45	169.94	2039	SM, ME, ER	~4.0
#225#	11	57	0	-13.64	169.77	1966	SM, ME	4.0
#225#	11	58	0	-10.78	169.60	1893	SM, ME, ER	4.2
#225#	11	59	0	-7.87	169.43	1820	SM, ME	~5.0
#225#	12	0	0	-4.91	169.26	1746	SM, ME	$\geq$6.0
#225#	12	1	0	-1.89	169.10	1673	SM, ER	7.8
#225#	12	2	0	1.19	168.93	1600	SM, ER	8.2
#225#	12	3	0	4.32	168.76	1527	SM	>7.0
#225#	12	4	0	7.51	168.60	1456	SM	$\geq$8.0
#225#	12	5	0	10.76	168.44	1385	SM, ER	9.0
#225#	12	6	0	14.07	168.28	1315	SM, ER	7.5
#225#	12	7	0	17.43	168.13	1247	SM	4.6
#225#	12	8	0	20.86	167.98	1181	SM, ER	4.9
#225#	12	9	0	24.34	167.84	1117	SM, ME	~4.5
#225#	12	10	0	27.88	167.71	1055	SM, ME, ER	4.5
#225#	12	11	0	31.47	167.59	996	SM, ME	4.5
#225#	12	12	0	35.12	167.48	940	SM, ME, ER	4.4

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR ROI NAMUR FOR 13 AUGUST 1977 DAY 225

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#225#	23	21	0	38.51	177.39	1129		
#225#	23	22	0	35.04	177.29	1194		
#225#	23	23	0	31.64	177.17	1260		
#225#	23	24	0	28.29	177.04	1329		
#225#	23	25	0	25.00	176.90	1399		
#225#	23	26	0	21.77	176.76	1470		
#225#	23	27	0	18.59	176.60	1542		
#225#	23	28	0	15.48	176.44	1614		
#225#	23	29	0	12.41	176.28	1687		
#225#	23	30	0	9.41	176.12	1761	SM, ER	8.0
#225#	23	31	0	6.45	175.95	1834	SM	7.9
#225#	23	32	0	3.55	175.78	1908	SM, ER	8.2
#225#	23	33	0	0.70	175.60	1981	SM	8.4
#225#	23	34	0	-2.10	175.43	2054	SM, ER	8.7
#225#	23	35	0	-4.86	175.25	2126	SM	10.0
#225#	23	36	0	-7.56	175.08	2197	SM, ER	~11.0
#225#	23	37	0	-10.23	174.90	2267	SM, ME	>10.5
#225#	23	38	0	-12.84	174.72	2337	SM, ER	10.9
#225#	23	39	0	-15.42	174.55	2405	SM, ME, ER	~8.5
#225#	23	40	0	-17.96	174.37	2472	SM, ME, ER	6.5
#225#	23	41	0	-20.45	174.20	2537	SM, ME, ER	7.0
#225#	23	42	0	-22.92	174.02	2601	SM, ME, ER	7.8
#225#	23	43	0	-25.34	173.85	2663	SM, ME, CE(1.1), ER	~6.8
#225#	23	44	0	-27.73	173.68	2724	SM, ME	6.4
#225#	23	45	0	-30.09	173.51	2783	SM, ME, ER	5.8
#225#	23	46	0	-32.42	173.35	2840	SM, ME, ER	~7.0
#225#	23	47	0	-34.72	173.19	2895	SM	>5.0
#225#	23	48	0	-36.99	173.03	2948		

ORBIT: 3669 ISIS I PASS SUMMARY FOR KIT NAMUR FOR 14 AUGUST 1977 DAY 226

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
226	11 22 0	-31.41	176.88	2382		
226	11 23 0	-28.83	176.73	2314		
226	11 24 0	-26.20	176.57	2244		
226	11 25 0	-23.53	176.40	2173		
226	11 26 0	-20.81	176.24	2102		
226	11 27 0	-18.05	176.07	2030		
226	11 28 0	-15.24	175.90	1957	SM, ME	4.0
226	11 29 0	-12.37	175.74	1884	SM, ME	>3.0
226	11 30 0	-9.45	175.57	1810	SP, ME	>4.0
226	11 31 0	-6.48	175.40	1737	SP, STV, ME	>5.0
226	11 32 0	-3.46	175.23	1664	SP, ME	>5.0
226	11 33 0	-0.37	175.06	1591	SP, ME	>5.0
226	11 34 0	2.77	174.90	1518	SP, ME	>6.0
226	11 35 0	5.96	174.73	1447	VSP, STV, ME, RSP, ET(1.6)	>6.0
226	11 36 0	9.22	174.57	1376	VSP, STV, ME, RSP, ET(1.8)	>5.0
226	11 37 0	12.54	174.42	1307	SP, STV, ME, RSP, ET(2.5)	≥6.0
226	11 38 0	15.91	174.26	1239	SM, WSP(>5.0)	≥6.0
226	11 39 0	19.34	174.11	1173	SM, ME	≥6.0
226	11 40 0	22.83	173.97	1109	SP, ME	≥6.0
226	11 41 0	26.38	173.84	1048	SP, ME	~5.0
226	11 42 0	29.98	173.71	989	WSP, ME	≥4.0
226	11 43 0	33.64	173.60	933	WSP, ME	≥5.5
226	11 44 0	37.35	173.50	880	SM, ME	~5.0

OBJECT: 3669 1515 1 PASS SUMMARY FOR KOT NAMUR FOR 15 AUGUST 1977 DAY 227

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#227#	10 54 0	-30.44	-177.15	2305		
#227#	10 55 0	-27.81	-177.31	2235		
#227#	10 56 0	-25.13	-177.47	2164		
#227#	10 57 0	-22.41	-177.63	2093		
#227#	10 58 0	-19.64	-177.80	2020	SM, ME	~4.0
#227#	10 59 0	-16.82	-177.96	1947	SM, ME, CE(1.5)	~4.5
#227#	11 0 0	-13.95	-178.13	1874	SP, ME	~5.0
#227#	11 1 0	-11.03	-178.30	1801	SM, ME, WSP, CE(1.8)	~5.0
#227#	11 2 0	-8.05	-178.47	1727	SM, ME, WSP, CE(1.5)	~7.0
#227#	11 3 0	-5.01	-178.63	1654	SP, ME, ET(3)	>6.0
#227#	11 4 0	-1.93	-178.80	1581	SP, STV, ME, ET(3)	>6.0
#227#	11 5 0	1.22	-178.97	1509	VVSP, STV, ME, RSP, ET(2.7)	>6.0
#227#	11 6 0	4.43	-179.13	1438	VSP, STV, ME, RSP, ET(2.6)	≥7.0
#227#	11 7 0	7.69	-179.29	1367	SP, STV, ME, ET(3.0)	≥6.0
#227#	11 8 0	11.01	-179.45	1298	SP, STV, ME, ET(4.2)	≥6.0
#227#	11 9 0	14.40	-179.60	1231	SP, ME	≥5.8
#227#	11 10 0	17.84	-179.75	1165	SP, ME, ER	4.8
#227#	11 11 0	21.34	-179.90	1101	SM, ME, CE(1.8)	>3.5
#227#	11 12 0	24.89	179.97	1040	SM, ME, ER	≥4.0
#227#	11 13 0	28.50	179.84	982	SM, ME	~4.5
#227#	11 14 0	32.17	179.72	926	SM, ME	~4.0

OBJECT: [illegible] ISIS I PASS SUMMARY FOR KOT NAMUR FOR 15 AUGUST 1977 DAY [illegible]

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
227	13 3 0	28.68	150.56	2253		
227	13 4 0	-26.01	150.40	2183		
227	13 5 0	-23.30	150.24	2111		
227	13 6 0	-20.55	150.08	2039	SM, ME	~4.5
227	13 7 0	-17.74	149.91	1967	SM, ME	~5.0
227	13 8 0	-14.88	149.74	1893	SM, ME	~4.5
227	13 9 0	-11.97	149.58	1820	SM, ME	?
227	13 10 0	-9.01	149.41	1747	M	
227	13 11 0	-5.99	149.24	1673	VSP, ME	~5.5
227	13 12 0	-2.91	149.07	1600	SP, ME, CE	~4.0
227	13 13 0	0.22	148.91	1528	SP, ME, CE(1.3)	4.5
227	13 14 0	3.41	148.75	1456	VSP(<3), STV, ME, ER	4.5
227	13 15 0	6.66	148.58	1385	M	
227	13 16 0	9.96	148.42	1316	SP(<3), STV, ME	~4.0
227	13 17 0	13.33	148.27	1248	VSP(<3.5), STV, ME	~4.0
227	13 18 0	16.76	148.12	1182	VSP, ME	~4.0
227	13 19 0	20.24	147.97	1118		
227	13 20 0	23.78	147.83	1056		
227	13 21 0	27.38	147.70	997		
227	13 22 0	31.04	147.58	940		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 15 AUGUST 1977 DAY 227

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#228#	0 32 0	39.12	157.37	1193		
#228#	0 33 0	35.72	157.27	1260	SM, ME(<2), ER	8.7
#228#	0 34 0	32.38	157.15	1328	SM, ME(<2), ER	9.0
#228#	0 35 0	29.09	157.02	1398	SM, ME(<2)	>8.0
#228#	0 36 0	25.86	156.88	1469	SM, ME(<2)	8.7
#228#	0 37 0	22.69	156.73	1541	SM, ER	8.1
#228#	0 38 0	19.57	156.58	1614	SM, ER	8.5
#228#	0 39 0	16.51	156.42	1687	SM	>6.0
#228#	0 40 0	13.50	156.26	1760	SM	>7.0
#228#	0 41 0	10.55	156.09	1834	SM	7.0
#228#	0 42 0	7.64	155.92	1908	SM, ER	7.0
#228#	0 43 0	4.79	155.75	1981	SM, ER	8.9
#228#	0 44 0	1.99	155.57	2053	SM	9.0
#228#	0 45 0	-0.76	155.40	2125	SM	>10.0
#228#	0 46 0	-3.47	155.22	2197	SM, CE(1.3)	>10.5
#228#	0 47 0	-6.13	155.04	2267	SM, ER	10.8
#228#	0 48 0	-8.75	154.86	2336	SM	>10.0
#228#	0 49 0	-11.33	154.69	2405	SM, ME, ER	8.9
#228#	0 50 0	-13.87	154.51	2471	SM, ER	>5.0
#228#	0 51 0	-16.37	154.33	2537	SM, ME	7.0
#228#	0 52 0	-18.83	154.15	2601	SM, ME	>7.0
#228#	0 53 0	-21.26	153.98	2663	SM, ME	7.2
#228#	0 54 0	-23.65	153.80	2724		
#228#	0 55 0	-26.01	153.63	2783		
#228#	0 56 0	-28.34	153.46	2840		
#228#	0 57 0	-30.64	153.29	2895		
#228#	0 58 0	-32.92	153.12	2948		
#228#	0 59 0	-35.17	152.96	2999		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 17 AUGUST 1977 DAY 229

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
229	0	3	0	40.62	163.48	1202		
229	0	4	0	37.22	163.38	1269		
229	0	5	0	33.89	163.27	1337	SM, ER	8.1
229	0	6	0	30.61	163.14	1407	SM	9.0
229	0	7	0	27.39	163.01	1479	SM, ER	8.9
229	0	8	0	24.22	162.86	1551	SM, ER	9.5
229	0	9	0	21.11	162.71	1623	SM	>9.0
229	0	10	0	18.06	162.55	1697	SM	~10.0
229	0	11	0	15.06	162.39	1770	SM	9.1
229	0	12	0	12.11	162.22	1844	SM, ER	8.0
229	0	13	0	9.22	162.05	1917	SM	7.5
229	0	14	0	6.37	161.88	1990	SM, ER	8.0
229	0	15	0	3.58	161.71	2063	SM, ER	8.8
229	0	16	0	0.83	161.53	2135	SM	9.2
229	0	17	0	-1.87	161.35	2206	SM	9.8
229	0	18	0	-4.53	161.18	2276	SM	>10.0
229	0	19	0	-7.14	161.00	2346	SM	>10.0
229	0	20	0	-9.72	160.82	2414	SM	>10.0
229	0	21	0	-12.25	160.64	2480	SM, ME, CE(1.4)	>10.0
229	0	22	0	-14.74	160.46	2545	SM, ME, ER	9.0
229	0	23	0	-17.20	160.28	2609	SM, ME, ER	8.9
229	0	24	0	-19.63	160.10	2671	SM, ME, ER	8.1
229	0	25	0	-22.02	159.93	2732	SM, ME, ER	8.3
229	0	26	0	-24.37	159.75	2790	SM, ME, CE(1.3)	8.0
229	0	27	0	-26.70	159.58	2847	SM, ME, CE(1.3)	≥7.5
229	0	28	0	-29.00	159.41	2902	SM, ME, ER	7.3
229	0	29	0	-31.27	159.24	2955	SM, ME	7.4
229	0	30	0	-33.52	159.07	3005	SM, ME	6.5
229	0	31	0	-35.74	158.91	3054	SM, ME, ER	6.3

PROG: 1659 ISIS 1 PASS SUMMARY FOR KOI NAMUR FOR 17 AUGUST 1972 DAY 229

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
229	12	5	0	31.87	162.80	2234		
229	12	6	0	-29.19	162.65	2164		
229	12	7	0	-26.47	162.49	2092		
229	12	8	0	-23.70	162.33	2020		
229	12	9	0	-20.88	162.17	1947		
229	12	10	0	-18.01	162.01	1874	SM, ME, ER	4.0
229	12	11	0	-15.09	161.84	1800	SM, ME	5.0
229	12	12	0	-12.11	161.68	1727	SM, ME	5.0
229	12	13	0	-9.08	161.51	1654	SP, STV, ME, ET(1.7)	>5.8
229	12	14	0	-5.99	161.35	1581	VSP, STV, ME, RSP, ET(1.6)	>6.0
229	12	15	0	-2.85	161.18	1509	VVSP, STV, RSP, ET(1.2)	>6.0
229	12	16	0	0.36	161.02	1437	VVSP, RSP, ME	>5.0
229	12	17	0	3.62	160.86	1367	VVSP, RSP, ET(1.1)	>6.0
229	12	18	0	6.95	160.70	1298	VVSP, RSP	>6.0
229	12	19	0	10.33	160.54	1230	VVSP, RSP	>6.0
229	12	20	0	13.77	160.39	1165	VVSP, STV, ET(1.6)	>5.0
229	12	21	0	17.27	160.24	1101	VVSP, STV, ET(1.6)	>6.0
229	12	22	0	20.83	160.09	1040	VSP, STV, ET(1.8)	>7.0
229	12	23	0	24.45	159.96	982	SM, ER	7.3
229	12	24	0	28.12	159.83	926	SM, ER	6.9
229	12	25	0	31.84	159.71	874	SM, ER	6.9
229	12	26	0	35.61	159.61	825	SM	6.8

ORBIT: 4669 ISIS I PASS SUMMARY FOR EDT NAMUR FOR 17 AUGUST 1977 DAY 229

Day	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#229#	23	34	0	42.10	169.59	1211		
#229#	23	35	0	38.71	169.50	1278	SM, ER	5.5
#229#	23	36	0	35.39	169.39	1347	SM, ER	6.3
#229#	23	37	0	32.12	169.26	1417	SM	7.0
#229#	23	38	0	28.90	169.13	1488	SM, ER	7.9
#229#	23	39	0	25.75	168.99	1560	SM, ER	8.9
#229#	23	40	0	22.65	168.84	1633	SM	9.9
#229#	23	41	0	19.60	168.68	1707	SM	10.0
#229#	23	42	0	16.61	168.52	1780	SM, ER	9.2
#229#	23	43	0	13.67	168.36	1854	SM, ER	~8.0
#229#	23	44	0	10.78	168.19	1927	SM, ER	7.5
#229#	23	45	0	7.94	168.02	2000	SM, ER	7.6
#229#	23	46	0	5.16	167.84	2073	SM, ER	7.6
#229#	23	47	0	2.41	167.67	2145	SM	9.0
#229#	23	48	0	-0.28	167.49	2216	SM	10.0
#229#	23	49	0	-2.96	167.31	2286	SM	>10.0
#229#	23	50	0	-5.54	167.13	2355	SM, ME	>10.0
#229#	23	51	0	-8.11	166.95	2423	SM, ME	>10.0
#229#	23	52	0	-10.64	166.77	2489	SM, ME	>10.0
#229#	23	53	0	-13.13	166.59	2554	SM	>10.0
#229#	23	54	0	-15.58	166.41	2618	SM, ME, ER	~8.0
#229#	23	55	0	18.00	166.23	2679	SM, ME, ER	6.8
#229#	23	56	0	-20.39	166.05	2740	SM, ME, ER	~8.0
#229#	23	57	0	-22.74	165.88	2798	SM, ER	~7.0
#229#	23	58	0	-25.06	165.70	2854	SM, ME, CE(1.2)	~7.5
#229#	23	59	0	-27.34	165.53	2909	SM, ME	>6.0
#230#	0	0	0	-29.63	165.36	2962	SM	~7.0
#230#	0	1	0	-31.87	165.19	3012	SM	>5.0
#230#	0	2	0	-34.09	165.02	3060	SM, ER	~6.0
#230#	0	3	0	-36.29	164.86	3107	SM, ER	5.6
#230#	0	4	0	-38.46	164.70	3151	SM, ER	5.7

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 18 AUGUST 1977 DAY 230

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
230	23	6	0	40.20	175.61	1287	SM, ME, CE(1.6)	6.5
230	23	7	0	36.88	175.50	1356	SM, ME, CE(1.8), ER	7.0
230	23	8	0	33.62	175.38	1427	SM, ME, ER	7.0
230	23	9	0	30.41	175.25	1498	SM, ME, CE(1.5), ER	7.7
230	23	10	0	27.27	175.11	1570	SM, ME(<2), ER	8.0
230	23	11	0	24.17	174.97	1643	SM, CE(1.6), ER	8.3
230	23	12	0	21.14	174.81	1717	SM, CE(1.7), ER	9.1
230	23	13	0	18.15	174.65	1790	SM, CE(1.6), ER	9.0
230	23	14	0	15.22	174.49	1864	SM	~8.0
230	23	15	0	12.34	174.32	1937	SM, CE(1.4), ER	7.7
230	23	16	0	9.51	174.15	2010	SM, ER	6.6
230	23	17	0	6.73	173.98	2083	SM, ER	6.4
230	23	18	0	3.99	173.80	2154	SM, ER	6.9
230	23	19	0	1.30	173.62	2225	SM, ER	8.0
230	23	20	0	-1.34	173.44	2295	SM, CE(1.4)	≥7.9
230	23	21	0	-3.94	173.26	2364	SM, CE(1.4)	≥9.5
230	23	22	0	-6.51	173.08	2432		
230	23	23	0	-9.03	172.90	2498		
230	23	24	0	-11.52	172.72	2563		
230	23	25	0	-13.96	172.54	2626		
230	23	26	0	-16.38	172.36	2688		
230	23	27	0	-18.76	172.18	2748		
230	23	28	0	-21.11	172.00	2806		
230	23	29	0	-23.43	171.83	2862		
230	23	30	0	-25.73	171.65	2916		
230	23	31	0	-27.99	171.48	2969		
230	23	32	0	-30.23	171.31	3019		
230	23	33	0	-32.45	171.14	3067		
230	23	34	0	-34.64	170.97	3113		
230	23	35	0	-36.81	170.81	3157		

OBJECT: 3669 ISIS I PASS SUMMARY FOR FOI NAMUR FOR 19 AUGUST 1977 DAY 231

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
231	11	9	0	-29.61	174.74	2072		
231	11	10	0	-26.83	174.58	2000		
231	11	11	0	-24.00	174.43	1927	SM, ME, CE(1.7), ER	3.8
231	11	12	0	-21.11	174.27	1853	SM, ME, ER	3.8
231	11	13	0	-18.18	174.11	1780	SM, ME, ER	3.8
231	11	14	0	-15.19	173.94	1707	SM, ME, ER	~4.0
231	11	15	0	-12.14	173.78	1634	SM, ME	4.5
231	11	16	0	-9.04	173.62	1561	WSP, ME, ET?(5.2)	≥6.0
231	11	17	0	-5.87	173.45	1489	WSP, ME	≥7.5
231	11	18	0	-2.65	173.29	1418	SP, STV, ME, RSP, ET(2.5)	≥7.0
231	11	19	0	0.63	173.13	1348	VVSP, STV, ME, RSP, ET(2.0)	≥6.0
231	11	20	0	3.97	172.97	1279	VVSP, STV, RSP, ET(1.8)	≥6.0
231	11	21	0	7.37	172.81	1212	VVSP, STV, RSP, ET(2.0)	≥7.0
231	11	22	0	10.83	172.66	1147	VSP, STV, RSP, ET(2.8), ER	~7.2
231	11	23	0	14.35	172.51	1084	WSP(>5), ME, CE(1.3)	≥6.0
231	11	24	0	17.92	172.36	1024	SM, ME, ER	~5.0
231	11	25	0	21.55	172.22	966	SM, ME, ER	≥3.5
231	11	26	0	25.24	172.09	912	SM, ME, ER	3.8
231	11	27	0	28.98	171.97	860	SM, ME	3.8
231	11	28	0	32.76	171.85	812	VSP, ME	~4.0

OBJECT: 3669 ISIS I PASS SUMMARY FOR KOI NAMUR FOR 19 AUGUST 1977 DAY 231

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
231	22	38	0	38.37	-178.38	1366		
231	22	39	0	35.11	-178.50	1436		
231	22	40	0	31.92	-178.62	1508	SM	8.3
231	22	41	0	28.78	-178.76	1580	SM	8.6
231	22	42	0	25.70	-178.91	1653	SM	9.5
231	22	43	0	22.67	-179.06	1727	SM	9.4
231	22	44	0	19.69	-179.22	1800	SM	9.1
231	22	45	0	16.77	-179.38	1874	SM, CE(1.6)	8.6
231	22	46	0	13.89	-179.55	1947	SM, ER	8.2
231	22	47	0	11.07	-179.72	2020	SM, ER	7.5
231	22	48	0	8.30	-179.89	2093	SM, ER	6.8
231	22	49	0	5.57	179.94	2164	SM, CE(1.2), ER	6.8
231	22	50	0	2.88	179.76	2235	SM, ER	7.0
231	22	51	0	0.25	179.58	2305	SM	>7.0
231	22	52	0	-2.35	179.40	2374		
231	22	53	0	-4.91	179.22	2441		
231	22	54	0	-7.43	179.04	2507		
231	22	55	0	-9.91	178.85	2572		
231	22	56	0	-12.35	178.67	2635		
231	22	57	0	-14.76	178.49	2696		
231	22	58	0	-17.14	178.31	2756		
231	22	59	0	-19.49	178.13	2814		
231	23	0	0	-21.81	177.95	2870		
231	23	1	0	-24.10	177.77	2924		
231	23	2	0	-26.36	177.60	2976		
231	23	3	0	-28.60	177.42	3026		
231	23	4	0	-30.81	177.25	3074		
231	23	5	0	-33.00	177.08	3119		
231	23	6	0	-35.17	176.92	3164		
231	23	7	0	-37.32	176.76	3204		

OBJECT: 3659 ISIS I PASS SUMMARY FOR KOI NAMUR FOR 20 AUGUST 1977 DAY 232

DAY	Time (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
232	12	51	0	-23.58	148.27	1862		
232	12	52	0	-20.65	148.11	1789		
232	12	53	0	-17.67	147.95	.715		
232	12	54	0	-14.63	147.79	1642		
232	12	55	0	-11.53	147.63	1569		
232	12	56	0	-8.38	147.46	1497		
232	12	57	0	-5.17	147.30	1426	SM, ME	>6.5
232	12	58	0	-1.89	147.14	1356	WSP, ME, ET(5.2)	>6.0
232	12	59	0	1.44	146.98	1287	SP, STV, ME, ET(3.0)	>5.0
232	13	0	0	4.83	146.82	1220	VSP, STV, ET(2.7)	>6.0
232	13	1	0	8.29	146.67	1155	VSP, STV, ET(2.7)	7.8
232	13	2	0	11.80	146.51	1092	VSP, STV, ET(2.9), ER	>6.0
232	13	3	0	15.37	146.36	1031	WSP, ET(4.4)	>6.0
232	13	4	0	18.99	146.22	973	SM, ER	~4.7
232	13	5	0	22.67	146.09	918	SM, ME, ER	~5.0
232	13	6	0	26.41	145.96	866	SM, ME, ER	5.2

OBJECT: 3669 ISIS I PASS SUMMARY FOR RDI NAMUR FOR 21 AUGUST 1977 DAY 233

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
233	0	17	0	40.87	155.58	1358		
233	0	18	0	37.61	155.48	1428	SM, ME(<2), CE(1.6)	>6.0
233	0	19	0	34.41	155.36	1500	SM, ME(<2), ER	7.9
233	0	20	0	31.27	155.23	1572	SM, ME(<2)	7.8
233	0	21	0	28.18	155.09	1645	SM, ME(<2), CE(1.4), ER	8.1
233	0	22	0	25.15	154.94	1718	SM, ME(<2), CE(1.6), ER	9.1
233	0	23	0	22.16	154.79	1792	SM	9.6
233	0	24	0	19.24	154.63	1865	SM, CE(1.3)	9.5
233	0	25	0	16.36	154.46	1939	SM, ER	9.1
233	0	26	0	13.53	154.29	2012	SM	~8.0
233	0	27	0	10.75	154.12	2084	SM, ER	7.2
233	0	28	0	8.02	153.95	2156	SM	6.5
233	0	29	0	5.33	153.77	2227	SM, CE(1.7)	~7.0
233	0	30	0	2.68	153.59	2297	SM	9.0
233	0	31	0	0.08	153.41	2366	SM	9.9
233	0	32	0	-2.48	153.23	2433	SM	>10.0
233	0	33	0	-5.00	153.05	2500	SM	>10.0
233	0	34	0	-7.49	152.87	2564	SM, CE(1.5)	>10.0
233	0	35	0	-9.94	152.68	2628	SM, ME	>10.0
233	0	36	0	-12.35	152.50	2689	SM, ME	>10.0
233	0	37	0	-14.74	152.32	2749	SM, ME	9.7
233	0	38	0	-17.09	152.14	2807	SM, ME, CE(1.3), ER	9.3
233	0	39	0	-19.41	151.96	2863	SM, ER	8.8
233	0	40	0	-21.70	151.78	2918	SM, ME, CE(1.1), ER	8.1
233	0	41	0	-23.97	151.60	2970	SM, ME, ER	7.2
233	0	42	0	-26.21	151.42	3020	SM, ME	>5.0
233	0	43	0	-28.43	151.25	3068	SM, ER	~8.0
233	0	44	0	-30.62	151.08	3114	SM, ME	>5.0
233	0	45	0	-32.79	150.91	3158	SM, ME	~7.0
233	0	46	0	-34.95	150.74	3199	SM, ER	>6.0

OBJECT: 3609 ISIS I PASS SUMMARY FOR KOI NAMUR FOR 21 AUGUST 1977 DAY 233

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT.KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
233	10 14 0	-24.18	-173.48	1832		
233	10 15 0	-21.23	-173.63	1759		
233	10 16 0	-18.22	-173.79	1686	SM, ME, ER	>5.0
233	10 17 0	-15.16	-173.95	1613	SM, ME, RSP	>5.0
233	10 18 0	-12.04	-174.11	1540	SP, STV, ME, RSP, ET(3.0)	>6.5
233	10 19 0	-8.86	-174.27	1468	VSP, STV, RSP, ET(1.9)	>6.0
233	10 20 0	-5.63	-174.44	1398	VSP, STV, RSP, ET(1.7)	>6.0
233	10 21 0	-2.33	-174.60	1328	VSP, STV, RSP, ET(1.5)	>7.0
233	10 22 0	1.03	-174.76	1260	VVSP, STV, RSP, ET(1.5), ER	>7.1
233	10 23 0	4.45	-174.91	1194	VVSP, STV, ET(1.7)	>6.0
233	10 24 0	7.92	-175.07	1129	VVSP, STV, RSP, ET(1.7)	>6.0
233	10 25 0	11.46	-175.22	1067	VSP, STV, RSP, ET(2.3)	>6.0
233	10 26 0	15.05	-175.37	1007	SP, STV, RSP, ET(4.0)	>9.0
233	10 27 0	18.70	-175.51	951	SM	>7.0
233	10 28 0	22.40	-175.65	897		
233	10 29 0	26.16	-175.78	846		
233	10 30 0	29.96	-175.90	800		

233	12 21 0	-27.99	154.55	1925		
233	12 22 0	25.11	154.40	1851		
233	12 23 0	-22.18	154.24	1778	SM, ME, ER	~5.0
233	12 24 0	-19.18	154.08	1705	SM, ME, CE(1.6), ER	4.2
233	12 25 0	-16.14	153.92	1632	SM, ME, CE(1.8), ER	4.4
233	12 26 0	-13.03	153.76	1559	SM, ME, ER	4.4
233	12 27 0	-9.87	153.60	1487	SM, ME, ER	4.0
233	12 28 0	-6.65	153.44	1416	SM, ME, ER	~6.5
233	12 29 0	-3.37	153.28	1346	SM, ME	~8.5
233	12 30 0	0.03	153.12	1277	SM, ER	8.9
233	12 31 0	3.38	152.96	1211	SM, ER	8.0
233	12 32 0	6.84	152.80	1146	SM, ER	7.2
233	12 33 0	10.36	152.65	1083	SM, ER	7.3
233	12 34 0	13.94	152.50	1023	SM, ER	7.2
233	12 35 0	17.57	152.36	965	SM	>6.0
233	12 36 0	21.26	152.22	910	SM, ER	5.1
233	12 37 0	25.00	152.09	859	SM, ME, ER	4.7
233	12 38 0	28.79	151.97	811	SM, ME	4.4

OBJECT: 3669 ISIS I PASS SUMMARY FOR POI NAMUR FOR 21 AUGUST 1977 DAY 233

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#233#	23 48 0	42.34	161.69	1368		
#233#	21 49 0	39.09	161.59	1438		
#233#	23 50 0	35.90	161.48	1510	SM, ER	6.7
#233#	23 51 0	32.76	161.35	1582	SM	7.0
#233#	23 52 0	29.68	161.21	1655	SM, ER	7.4
#233#	23 53 0	26.66	161.07	1729	SM, ER	~7.5
#233#	23 54 0	23.69	160.92	1802	SM, CE(1.6)	>5.0
#233#	23 55 0	20.77	160.76	1876	SM	>7.0
#233#	23 56 0	17.90	160.59	1949	SM	>8.0
#233#	23 57 0	15.07	160.43	2022	SM	8.5
#233#	23 58 0	12.30	160.26	2095	SM, ER	8.5
#233#	23 59 0	9.57	160.08	2166	SM, ER	8.3
#234#	0 0 0	6.89	159.91	2237	SM	>5.0
#234#	0 1 0	4.25	159.73	2307	SM	?
#234#	0 2 0	1.66	159.55	2376	SM	>9.0
#234#	0 3 0	-0.90	159.37	2443	SM	>10.0
#234#	0 4 0	-3.42	159.18	2509	SM, ER	9.4
#234#	0 5 0	-5.90	159.00	2574	SM	>5.0
#234#	0 6 0	-8.34	158.82	2637		
#234#	0 7 0	-10.75	158.63	2698		
#234#	0 8 0	-13.13	158.45	2758		
#234#	0 9 0	-15.48	158.27	2815		
#234#	0 10 0	-17.79	158.09	2871		
#234#	0 11 0	-20.08	157.90	2925		
#234#	0 12 0	-22.35	157.72	2977		
#234#	0 13 0	-24.59	157.55	3027		
#234#	0 14 0	-26.80	157.37	3075		
#234#	0 15 0	-28.99	157.19	3120		
#234#	0 16 0	-31.16	157.02	3164		
#234#	0 17 0	-33.31	156.85	3205		
#234#	0 18 0	-35.44	156.69	3244		
#234#	0 19 0	-37.56	156.53	3280		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 22 AUGUST 1977 DAY 234

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
234	11	52	0	-29.52	160.67	1914		
234	11	53	0	-26.63	160.52	1841		
234	11	54	0	-23.69	160.37	1767		
234	11	55	0	-20.69	160.21	1694		
234	11	56	0	-17.64	160.06	1621	SM, ME, CE(1.8), ER	4.3
234	11	57	0	-14.52	159.90	1548	SM, ME, ER	4.2
234	11	58	0	-11.35	159.74	1476	SM, ME, ER	4.5
234	11	59	0	-8.12	159.58	1406	SM, ME	>5.0
234	12	0	0	-4.83	159.42	1336	SM	>9.5
234	12	1	0	-1.48	159.26	1268	SM, RSP	>9.5
234	12	2	0	1.93	159.10	1201	SM, RSP, ER	9.0
234	12	3	0	5.40	158.94	1136	SM, RSP, ER	8.2
234	12	4	0	8.93	158.79	1074	SM, ER	8.0
234	12	5	0	12.51	158.64	1014	SM	8.2
234	12	6	0	16.16	158.49	957	SM, ER	8.0
234	12	7	0	19.86	158.35	903	SM	6.0
234	12	8	0	23.61	158.22	852	SM, ER	5.1
234	12	9	0	27.41	158.09	805	SM, ME, ER	4.5
234	12	10	0	31.25	157.98	761	SM, ME	4.2

OBJECT: 3669 ISIS I PASS SUMMARY FOR R01 NAMUR FOR 22 AUGUST 1977 DAY 234

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
234	23	19	0	43.80	167.79	1378		
234	23	20	0	40.56	167.70	1449		
234	23	21	0	37.38	167.59	1521		
234	23	22	0	34.25	167.47	1593		
234	23	23	0	31.18	167.34	1666		
234	23	24	0	28.17	167.19	1740		
234	23	25	0	25.20	167.04	1813		
234	23	26	0	22.29	166.89	1887		
234	23	27	0	19.43	166.73	1960	SM	9.1
234	23	28	0	16.61	166.56	2033	SM	9.5
234	23	29	0	13.85	166.39	2105	SM	9.5
234	23	30	0	11.13	166.22	2177	SM	9.2
234	23	31	0	8.45	166.04	2247	SM, ER	9.7
234	23	32	0	5.82	165.86	2317	SM	9.5
234	23	33	0	3.23	165.68	2386	SM, ER	9.3
234	23	34	0	0.68	165.50	2453	SM	>8.0
234	23	35	0	-1.83	165.32	2519	SM, ER	9.4
234	23	36	0	-4.31	165.13	2583	SM, ER	9.0
234	23	37	0	-6.75	164.95	2646	SM, ER	8.1
234	23	38	0	-9.15	164.77	2707	SM, CE(1.5), ER	7.5
234	23	39	0	-11.53	164.58	2766	SM, ER	7.8
234	23	40	0	-13.87	164.40	2824	SM, ER	7.2
234	23	41	0	-16.18	164.21	2879	SM, ER	>7.0
234	23	42	0	-18.47	164.03	2933	SM	8.5
234	23	43	0	-20.73	163.85	2985	SM, ER	8.0
234	23	44	0	-22.96	163.67	3034	SM, ER	8.2
234	23	45	0	-25.18	163.49	3082	SM	>5.0
234	23	46	0	-27.37	163.31	3127	SM	7.0
234	23	47	0	-29.53	163.14	3170	SM	6.4
234	23	48	0	-31.68	162.97	3211	SM	>5.0
234	23	49	0	-33.81	162.80	3249	SM	>6.5
234	23	50	0	-35.92	162.63	3285	SM	6.1
234	23	51	0	-38.02	162.47	3319	SM	6.0

OBJECT: 3669 ISIS I PASS SUMMARY FOR KOI NAMUR FOR 23 AUGUST 1977 DAY 235

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
235	11 24 0	-28.14	166.65	1829		
235	11 25 0	-25.19	166.50	1756		
235	11 26 0	-22.19	166.34	1683		
235	11 27 0	-19.12	166.19	1610		
235	11 28 0	-16.00	166.03	1537		
235	11 29 0	-12.82	165.87	1466		
235	11 30 0	-9.59	165.71	1395	SM, ME	~6.0
235	11 31 0	-6.29	165.55	1326	SM, ME, CE(1.4)	>5.0
235	11 32 0	-2.93	165.39	1258	VSP, STV, RSP	>5.0
235	11 33 0	0.49	165.24	1191	VSP, STV, RSP	>9.0
235	11 34 0	3.97	165.08	1127	VSP, STV, RSP	>9.0
235	11 35 0	7.51	164.93	1065	SM, RSP, ER	8.5
235	11 36 0	11.10	164.77	1005	SM, RSP, ER	7.6
235	11 37 0	14.76	164.63	949	SM, RSP	6.0
235	11 38 0	18.46	164.49	895	SM, ME, ER	5.2
235	11 39 0	22.22	164.35	845	SM, ME, ER	5.3
235	11 40 0	26.03	164.23	798	SM, ME, ER	5.5
235	11 41 0	29.88	164.11	756	SM, ME, ER	5.5
235	11 42 0	33.77	164.00	717	SM, ME, VSP(<3), ER	5.5

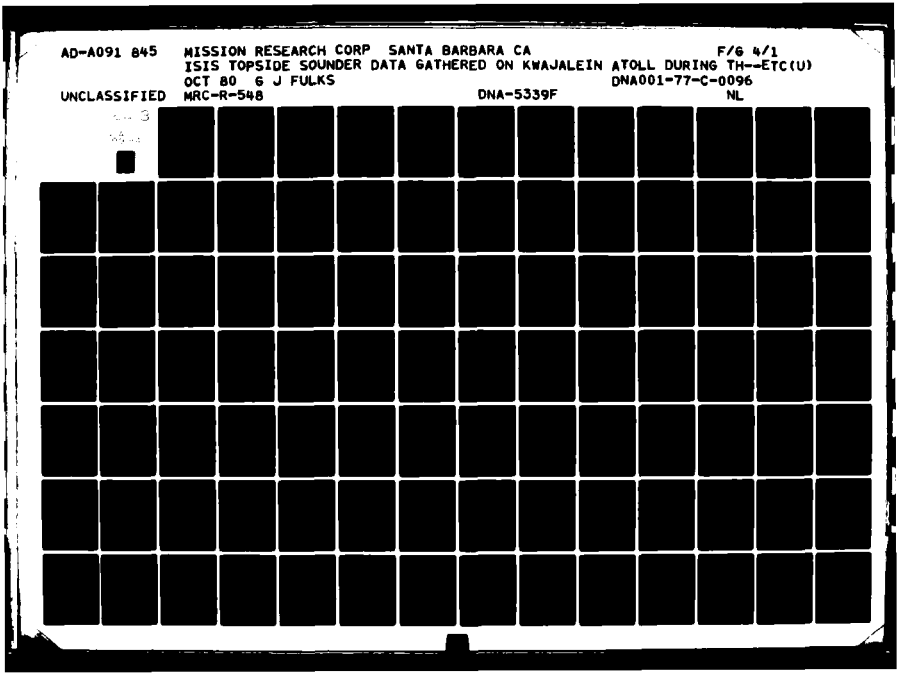
OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 23 AUGUST 1977 DAY 235

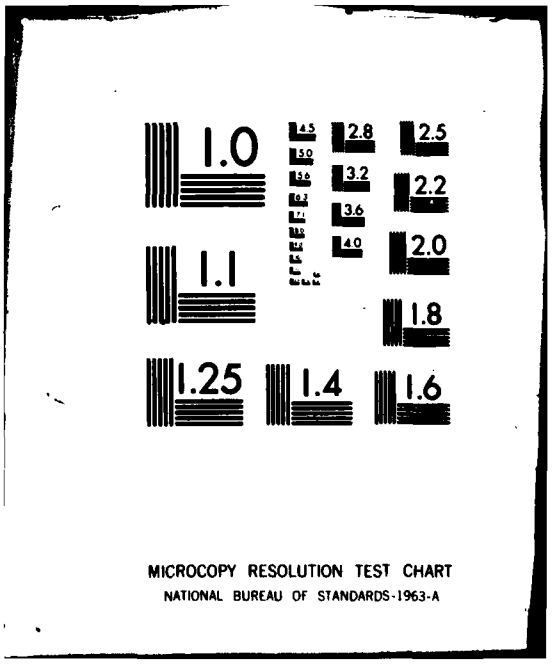
DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
235	22	51	0	42.02	173.81	1460		
235	22	52	0	38.85	173.70	1531		
235	22	53	0	35.73	173.59	1604	SM, ME(<3), ER	9.5
235	22	54	0	32.67	173.46	1677	SM, ME(<2.5), ER	8.6
235	22	55	0	29.67	173.32	1751	SM, ME(<2), ER	7.2
235	22	56	0	26.71	173.17	1824	SM, ME(<2), CE(2), ER	7.0
235	22	57	0	23.81	173.02	1898	SM, ME(<2), CE(1.7), ER	6.6
235	22	58	0	20.95	172.86	1971	SM, ME(<2), CE(1.5), ER	7.3
235	22	59	0	18.15	172.69	2044	SM, ME(<2), ER	7.5
235	23	0	0	15.39	172.52	2116	SM, ER	8.9
235	23	1	0	12.68	172.35	2187	SM, ER	9.0
235	23	2	0	10.01	172.17	2258	SM	9.4
235	23	3	0	7.38	172.00	2327	SM	9.5
235	23	4	0	4.80	171.82	2396	SM	9.6
235	23	5	0	2.25	171.64	2463	SM, ER	9.6
235	23	6	0	-0.25	171.45	2528	SM	9.6
235	23	7	0	-2.72	171.27	2593	SM, ER	9.2
235	23	8	0	-5.16	171.08	2655	SM, ER	8.7
235	23	9	0	-7.56	170.90	2716		
235	23	10	0	-9.93	170.71	2775		
235	23	11	0	-12.27	170.53	2832		
235	23	12	0	-14.58	170.35	2888		
235	23	13	0	-16.86	170.16	2941		
235	23	14	0	-19.12	169.98	2992		
235	23	15	0	-21.35	169.80	3042		
235	23	16	0	-23.56	169.62	3089		
235	23	17	0	-25.74	169.44	3134		
235	23	18	0	-27.91	169.26	3176		
235	23	19	0	-30.06	169.09	3217		
235	23	20	0	-32.18	168.91	3255		
235	23	21	0	-34.29	168.74	3290		
235	23	22	0	-36.39	168.58	3324		
235	23	23	0	-38.47	168.42	3355		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 24 AUGUST 1977 DAY 236

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
236	10	56	0	-26.69	172.62	1745		
236	10	57	0	-23.67	172.47	1672		
236	10	58	0	-20.60	172.32	1599		
236	10	59	0	-17.47	172.16	1526		
236	11	0	0	-14.29	172.01	1455	SM,ME,ER	5.9
236	11	1	0	-11.04	171.85	1384	SM,ME	>6.0
236	11	2	0	-7.73	171.69	1315	SP,STV,ME,ET(3.3)	>6.0
236	11	3	0	-4.37	171.53	1247	SP,STV,ME,ET(2.9)	>5.0
236	11	4	0	-0.94	171.37	1181	VSP,STV,ME,ET(2)	>5.0
236	11	5	0	2.55	171.22	1117	VSP,STV,ME,RSP,ET(1.8)	>9.0
236	11	6	0	6.10	171.06	1056	VVSP,STV,ME,RSP,ET(1.7),CE(1.8)	>9.0
236	11	7	0	9.70	170.91	997	VVSP,STV,ME,ET(1.8)	>5.0
236	11	8	0	13.37	170.77	940	VSP,STV,ME,ET(2.8),CE(1.7)	>6.0
236	11	9	0	17.08	170.62	887	VSP,STV,ME,ET(5)	>7.0
236	11	10	0	20.85	170.49	838	SP,ME	>5.0
236	11	11	0	24.66	170.36	792	SM,WSP	4.8
236	11	12	0	28.52	170.24	750	SM,ME(<2.5),ER	4.8
236	11	13	0	32.42	170.13	712		

AD-A091 845 MISSION RESEARCH CORP SANTA BARBARA CA F/G 4/1
ISIS TOPSIDE SOUNDER DATA GATHERED ON KWAJALEIN ATOLL DURING TH--ETC(U)
OCT 80 G J FULKS DNA001-77-C-0096
UNCLASSIFIED MRC-R-548 DNA-5339F NL




1.0
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 24 AUGUST 1977 DAY 236

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
236	22 23 0	40.32	179.82	1542		
236	22 24 0	37.21	179.70	1615	SM, ME(<2.5), ER	6.2
236	22 25 0	34.16	179.58	1688	SM, ME, CE(1.5), ER	6.8
236	22 26 0	31.16	179.44	1762	SM, ME, ER	8.0
236	22 27 0	28.21	179.30	1835	SM, ME(<2), ER	8.8
236	22 28 0	25.32	179.14	1909	SM, ME	>5.0
236	22 29 0	22.47	178.99	1982	SM, ME(<2)	>8.0
236	22 30 0	19.67	178.82	2055	SM, ME(<2), CE(1.5), ER	9.1
236	22 31 0	16.92	178.65	2127	SM, ME(<2), ER	9.3
236	22 32 0	14.22	178.48	2198	SM, ME(<2), CE(1.2)	9.0
236	22 33 0	11.56	178.31	2269	SM, ME(<1.5), CE(1.2), ER	8.5
236	22 34 0	8.94	178.13	2338	SM	7.7
236	22 35 0	6.36	177.95	2406	SM	7.5
236	22 36 0	3.82	177.77	2473	SM, ER	7.7
236	22 37 0	1.32	177.59	2538	SM, ER	8.5
236	22 38 0	-1.14	177.40	2602	SM	>8.0
236	22 39 0	-3.57	177.22	2664	SM, CE(1.2)	10.0
236	22 40 0	-5.97	177.03	2725		
236	22 41 0	-8.34	176.85	2784		
236	22 42 0	-10.67	176.66	2841		
236	22 43 0	-12.98	176.48	2896		
236	22 44 0	-15.26	176.29	2949		
236	22 45 0	-17.51	176.11	3000		
236	22 46 0	-19.74	175.92	3049		
236	22 47 0	-21.94	175.74	3096		
236	22 48 0	-24.13	175.56	3140		
236	22 49 0	-26.29	175.38	3182		
236	22 50 0	-28.43	175.21	3222		
236	22 51 0	-30.56	175.03	3260		
236	22 52 0	-32.67	174.86	3296		
236	22 53 0	-34.76	174.69	3328		
236	22 54 0	-36.84	174.53	3359		
236	22 55 0	-38.91	174.36	3387		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 25 AUGUST 1977 DAY 237

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
237	0	32	0	38.19	147.56	1596		
237	0	33	0	35.12	147.44	1669		
237	0	34	0	32.11	147.31	1743	SM, ER	5.9
237	0	35	0	29.15	147.17	1816	SM, ER	7.2
237	0	36	0	26.24	147.02	1890	SM	>9.0
237	0	37	0	23.38	146.86	1963	SM	>9.0
237	0	38	0	20.57	146.70	2036	SM, ME	>10.0
237	0	39	0	17.81	146.53	2108	WSP	>10.0
237	0	40	0	15.09	146.36	2180	SP(<5), STV	>10.0
237	0	41	0	12.42	146.19	2250	SP(<3), STV	10.0
237	0	42	0	9.79	146.01	2320	SP(<3), STV, ER	9.5
237	0	43	0	7.20	145.83	2389	SP(<4), STV, ER	9.5
237	0	44	0	4.65	145.65	2456	SP(<4), STV	9.6
237	0	45	0	2.14	145.47	2521	SP(<5), STV	>10.0
237	0	46	0	-0.33	145.28	2586	SP(<5), STV	>10.0
237	0	47	0	-2.77	145.10	2649	WSP	>10.0
237	0	48	0	-5.18	144.91	2710	WSP	>10.0
237	0	49	0	-7.55	144.73	2769	SM	>10.0
237	0	50	0	-9.89	144.54	2826		
237	0	51	0	-12.21	144.36	2882		
237	0	52	0	-14.49	144.17	2935		
237	0	53	0	-16.75	143.99	2987		
237	0	54	0	-18.99	143.80	3036		
237	0	55	0	-21.20	143.62	3084		
237	0	56	0	-23.39	143.44	3129		
237	0	57	0	-25.56	143.26	3172		
237	0	58	0	-27.70	143.08	3212		
237	0	59	0	-29.84	142.91	3251		
237	1	0	0	-31.95	142.73	3287		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 25 AUGUST 1977 DAY 237

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#237#	10 28 0	-25.25	178.60	1663		
#237#	10 29 0	-22.17	178.45	1590		
#237#	10 30 0	-19.04	178.29	1518		
#237#	10 31 0	-15.84	178.14	1447	SP, STV, ME, RSP, ET(3.7)	>6.0
#237#	10 32 0	-12.59	177.98	1376	VSP, STV, ME, RSP, ET(2), ER	>6.0
#237#	10 33 0	-9.28	177.82	1307	VSP, STV, RSP, ET(1.7)	>9.0
#237#	10 34 0	-5.90	177.67	1240	VSP, STV, RSP, ET(1.6)	>5.0
#237#	10 35 0	-2.47	177.51	1174	VVSP, STV, ET(1.3&2.7)	>6.0
#237#	10 36 0	1.03	177.35	1110	VVSP, STV, ET(1.2&2.6)	~8.0
#237#	10 37 0	4.58	177.20	1049	VVSP, STV	>7.0
#237#	10 38 0	8.19	177.05	990	VVSP, STV, ET(1.4&2.7)	>7.0
#237#	10 39 0	11.86	176.90	934	VVSP, STV	>9.0
#237#	10 40 0	15.58	176.76	882	VSP, STV, ET(1.8)	>6.0
#237#	10 41 0	19.36	176.62	832	SP, STV, ET(4.5)	~6.0
#237#	10 42 0	23.18	176.49	787	SM, ER	5.4
#237#	10 43 0	27.04	176.36	745	SM, ER	4.5
#237#	10 44 0	30.95	176.25	708		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 26 AUGUST 1977 DAY 238

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#238#	0	2	0	42.91	153.77	1531		
#238#	0	3	0	39.79	153.67	1604		
#238#	0	4	0	36.73	153.55	1677	SM, ME	>6.0
#238#	0	5	0	33.73	153.42	1750	SM, ME	>7.0
#238#	0	6	0	30.77	153.29	1824	SM, ME(<2)	8.3
#238#	0	7	0	27.87	153.14	1897	M	
#238#	0	8	0	25.02	152.98	1971	SM, ER	9.5
#238#	0	9	0	22.21	152.82	2044	SM, ME, ER	9.5
#238#	0	10	0	19.46	152.66	2116	SM, ME, ER	9.3
#238#	0	11	0	16.75	152.49	2187	SM, ER	8.5
#238#	0	12	0	14.08	152.32	2258	SM, WSP, ME, ER	7.7
#238#	0	13	0	11.45	152.14	2327	SM, WSP, ME	7.8
#238#	0	14	0	8.87	151.96	2396	SM, WSP	>7.0
#238#	0	15	0	6.33	151.78	2463	SM	>8.0
#238#	0	16	0	3.82	151.60	2528		
#238#	0	17	0	1.35	151.41	2592		
#238#	0	18	0	-1.09	151.23	2655		
#238#	0	19	0	-3.49	151.04	2716		
#238#	0	20	0	-5.86	150.86	2775		
#238#	0	21	0	-8.20	150.67	2832		
#238#	0	22	0	-10.51	150.49	2888		
#238#	0	23	0	-12.79	150.30	2941		
#238#	0	24	0	-15.05	150.11	2992		
#238#	0	25	0	-17.28	149.93	3042		
#238#	0	26	0	-19.49	149.74	3089		
#238#	0	27	0	-21.68	149.56	3133		
#238#	0	28	0	-23.85	149.38	3176		
#238#	0	29	0	-26.00	149.20	3217		
#238#	0	30	0	-28.13	149.02	3255		
#238#	0	31	0	-30.24	148.85	3290		
#238#	0	32	0	-32.33	148.67	3324		
#238#	0	33	0	-34.42	148.50	3355		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 26 AUGUST 1977 DAY 238

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
238	10	1	0	-20.57	-175.58	1509		
238	10	2	0	-17.37	-175.73	1437		
238	10	3	0	-14.11	-175.88	1367	SM, RSP	>7.0
238	10	4	0	-10.79	-176.04	1298	SM, RSP	>6.0
238	10	5	0	-7.40	-176.20	1231	SP, STV, RSP, ET(3)	>7.0
238	10	6	0	-3.96	-176.35	1165	VSP, STV, RSP, ET(2.6)	>6.0
238	10	7	0	-0.46	-176.51	1102	VVSP, STV, RSP, ET	>6.0
238	10	8	0	3.10	-176.66	1041	VVSP	>6.0
238	10	9	0	6.72	-176.82	983	VVSP	>5.0
238	10	10	0	10.40	-176.96	927	VVSP, RSP	>6.0
238	10	11	0	14.13	-177.11	875	VSP	≥6.0
238	10	12	0	17.91	-177.25	826		
238	10	13	0	21.74	-177.38	781		
238	10	14	0	25.61	-177.51	740		
238	10	15	0	29.52	-177.62	703		

238	12	9	0	-21.57	152.30	1527		
238	12	10	0	-18.38	152.14	1456		
238	12	11	0	-15.14	151.99	1385	SM, ME, ER	3.9
238	12	12	0	-11.84	151.83	1316	SM, ME	3.8
238	12	13	0	-8.47	151.68	1248	WSP(NP), ME, ER	4.6
238	12	14	0	-5.04	151.52	1182	SM, ME	8.2
238	12	15	0	-1.56	151.36	1118	SM, ME, ER	8.8
238	12	16	0	1.99	151.21	1057	SM, ME(<2), ER	8.5
238	12	17	0	5.60	151.06	998	SM, ER	7.8
238	12	18	0	9.26	150.91	941	SM, ER	8.2
238	12	19	0	12.97	150.76	888	SM, ER	8.3
238	12	20	0	16.74	150.62	839	SM, ER	8.0
238	12	21	0	20.56	150.48	793	SM, ER	5.9
238	12	22	0	24.42	150.35	750	SM, ER	5.2
238	12	23	0	28.32	150.24	712	SM, ER	5.3

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OBJECT: 3669 ISIS I PASS SUMMARY FOR RO1 NAMUR FOR 27 AUGUST 1977 DAY 239

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
239	11	39	0	-26.23	158.57	1590		
239	11	40	0	-23.09	158.43	1518		
239	11	41	0	-19.90	158.27	1446	SM, ME, ER	-5.0
239	11	42	0	-16.65	158.12	1376	SM, ME, CE(1.5), ER	4.2
239	11	43	0	-13.34	157.97	1307	SM, ME, CE(1.6)	4.2
239	11	44	0	-9.96	157.81	1239	SM, ME, ER	3.9
239	11	45	0	-6.53	157.66	1174	SM, ME, ER	4.0
239	11	46	0	-3.03	157.50	1110	SM, ER	8.1
239	11	47	0	0.52	157.35	1049	SM, ER	9.0
239	11	48	0	4.13	157.19	990	SM	8.5
239	11	49	0	7.80	157.04	934	SM, ER	9.1
239	11	50	0	11.53	156.90	882	SM	9.2
239	11	51	0	15.30	156.75	832	SM, ER	7.5
239	11	52	0	19.12	156.62	787	SM, ER	5.9
239	11	53	0	22.99	156.49	745	SM, ER	5.5
239	11	54	0	26.90	156.36	708	SM, ME, ER	5.5
239	11	55	0	30.85	156.25	675	SP, ME	5.6

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OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 28 AUGUST 1977 DAY 240

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
240	11 11 0	-24.61	164.55	1508		
240	11 12 0	-21.41	164.41	1436		
240	11 13 0	-18.15	164.25	1366		
240	11 14 0	-14.83	164.10	1297	SM, ME, ER	4.1
240	11 15 0	-11.45	163.95	1230	SM, ME, ER	4.2
240	11 16 0	-8.00	163.79	1165	SM, ME, ER	5.9
240	11 17 0	-4.50	163.64	1101	WSP, RSP, ET(8.8)	9.2
240	11 18 0	-0.94	163.48	1041	SP, STV, ET(6.5)	9.2
240	11 19 0	2.68	163.33	982	VSP, STV, ET(4.8), ER	8.1
240	11 20 0	6.36	163.18	927	SP, STV, ET(5)	~8.0
240	11 21 0	10.09	163.03	875	SP, STV, ET(6), ER	8.4
240	11 22 0	13.87	162.89	826	SM, ER	8.9
240	11 23 0	17.70	162.75	781	SM, ER	8.1
240	11 24 0	21.58	162.62	740	SM, ER	5.2
240	11 25 0	25.49	162.49	703	SM, ER	4.3
240	11 26 0	29.44	162.38	671		
240	11 27 0	33.43	162.28	643		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 28 AUGUST 1977 DAY 240

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
240	22	36	0	44.38	171.98	1633		
240	22	37	0	41.34	171.88	1707		
240	22	38	0	38.36	171.76	1780		
240	22	39	0	35.43	171.64	1854	SM	6.7
240	22	40	0	32.55	171.50	1927	SM, ER	7.8
240	22	41	0	29.72	171.35	2000	SM, ER	9.2
240	22	42	0	26.94	171.20	2073	SM	8.7
240	22	43	0	24.20	171.04	2145	SM	>10.0
240	22	44	0	21.51	170.88	2216	SM	>10.0
240	22	45	0	18.86	170.71	2286	SM	>10.0
240	22	46	0	16.26	170.53	2355	SM	9.6
240	22	47	0	13.69	170.36	2423	SM, ER	9.2
240	22	48	0	11.16	170.18	2489	SM	8.5
240	22	49	0	8.67	170.00	2554	SM, ER	8.2
240	22	50	0	6.21	169.81	2618	SM, ER	7.5
240	22	51	0	3.79	169.63	2680	SM, ER	7.5
240	22	52	0	1.40	169.44	2740	SM, ER	9.0
240	22	53	0	-0.96	169.26	2798	SM	>8.5
240	22	54	0	-3.28	169.07	2855	SM	>10.0
240	22	55	0	-5.58	168.88	2909	SM	>10.0
240	22	56	0	-7.86	168.69	2962	SM	>10.0
240	22	57	0	-10.11	168.51	3012	SM	>10.0
240	22	58	0	-12.33	168.32	3061	SM	>10.0
240	22	59	0	-14.53	168.13	3107		
240	23	0	0	-16.71	167.94	3151		
240	23	1	0	-18.87	167.76	3193		
240	23	2	0	-21.02	167.57	3232		
240	23	3	0	-23.14	167.39	3269		
240	23	4	0	-25.25	167.21	3304		
240	23	5	0	-27.34	167.03	3336		
240	23	6	0	-29.42	166.85	3366		
240	23	7	0	-31.48	166.67	3394		
240	23	8	0	-33.54	166.50	3419		
240	23	9	0	-35.58	166.33	3441		
240	23	10	0	-37.61	166.17	3461		
240	23	11	0	-39.64	166.01	3479		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 29 AUGUST 1977 DAY 241

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#241#	10 42 0	-26.11	170.68	1498		
#241#	10 43 0	-22.90	170.54	1427		
#241#	10 44 0	-19.64	170.39	1357	SM, ME	>4.0
#241#	10 45 0	-16.31	170.24	1288	SM, ME, ER	~4.0
#241#	10 46 0	-12.92	170.08	1221	SM, ME, ER	3.8
#241#	10 47 0	-9.47	169.93	1156	SM, ME, ER	~5.0
#241#	10 48 0	-5.96	169.78	1093	SM, ME, CE(1.5)	>6.0
#241#	10 49 0	-2.39	169.62	1032	SM, ME, ER	~9.0
#241#	10 50 0	1.24	169.47	974	WSP(NP), STV, ET(8.3)	>9.0
#241#	10 51 0	4.92	169.32	920	WSP(NP), STV, ET(7.5)	~8.5
#241#	10 52 0	8.66	169.17	868	SM, ER	~7.3
#241#	10 53 0	12.45	169.03	820	SM, ER	5.0
#241#	10 54 0	16.29	168.89	775	SM, ER	3.7
#241#	10 55 0	20.17	168.75	735	SM, ME, ER	4.0
#241#	10 56 0	24.09	168.63	699	SM, ME, ER	4.4
#241#	10 57 0	28.05	168.51	667	SM, ME, ER	5.0
#241#	10 58 0	32.04	168.40	640		

OBJECT: 3669 ISIS I PASS SUMMARY FOR KOI NAMUR FOR 29 AUGUST 1977 DAY 241

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
241	22	8	0	42.87	177.98	1717		
241	22	9	0	39.89	177.87	1790		
241	22	10	0	36.97	177.75	1864		
241	22	11	0	34.10	177.62	1937	SM, ME(<1.6), ER	8.7
241	22	12	0	31.28	177.47	2010	SM, ME(<1.7), ER	8.9
241	22	13	0	28.50	177.32	2083	SM	9.5
241	22	14	0	25.77	177.17	2155	SM	9.6
241	22	15	0	23.09	177.00	2226	SM	9.6
241	22	16	0	20.45	176.84	2296	SM	9.5
241	22	17	0	17.85	176.66	2364	SM	9.5
241	22	18	0	15.29	176.49	2432	SM, ER	9.2
241	22	19	0	12.76	176.31	2498	SM, ER	~9.0
241	22	20	0	10.28	176.13	2563	SM, ER	~8.0
241	22	21	0	7.83	175.95	2627	SM	6.8
241	22	22	0	5.41	175.76	2688	SM, ER	6.9
241	22	23	0	3.02	175.58	2748	SM, ER	7.5
241	22	24	0	0.67	175.39	2806	SM, ER	~8.0
241	22	25	0	-1.66	175.20	2862	SM	8.5
241	22	26	0	-3.95	175.02	2917	SM	>10.0
241	22	27	0	-6.22	174.83	2969		
241	22	28	0	-8.47	174.64	3019		
241	22	29	0	-10.69	174.45	3067		
241	22	30	0	-12.89	174.26	3113		
241	22	31	0	-15.07	174.07	3157		
241	22	32	0	-17.23	173.88	3198		
241	22	33	0	-19.36	173.70	3237		
241	22	34	0	-21.49	173.51	3274		
241	22	35	0	-23.59	173.33	3309		
241	22	36	0	-25.68	173.15	3341		
241	22	37	0	-27.76	172.97	3370		
241	22	38	0	-29.83	172.79	3397		
241	22	39	0	-31.88	172.61	3422		
241	22	40	0	-33.92	172.44	3444		
241	22	41	0	-35.95	172.27	3464		
241	22	42	0	-37.98	172.11	3481		
241	22	43	0	-40.00	171.95	3496		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
242	0 17 0	40.84	145.73	1771		
242	0 18 0	37.90	145.61	1845		
242	0 19 0	35.02	145.48	1918		
242	0 20 0	32.18	145.34	1991		
242	0 21 0	29.40	145.20	2064		
242	0 22 0	26.66	145.04	2136		
242	0 23 0	23.96	144.88	2207		
242	0 24 0	21.31	144.71	2278		
242	0 25 0	18.70	144.54	2347		
242	0 26 0	16.12	144.37	2415	SM	>9.0
242	0 27 0	13.59	144.19	2481	SM, CE(1.5), ER	8.2
242	0 28 0	11.10	144.01	2547	SM, ER	7.4
242	0 29 0	8.64	143.83	2610	SM	7.2
242	0 30 0	6.21	143.64	2672	SM, ER	~8.0
242	0 31 0	3.82	143.46	2733	SM, CE(1.2)	>7.0
242	0 32 0	1.46	143.27	2791	SM	>8.5
242	0 33 0	-0.88	143.08	2848	SM	>10.0
242	0 34 0	-3.18	142.90	2903	SM	>10.0
242	0 35 0	-5.46	142.71	2956	SM	>10.0
242	0 36 0	-7.71	142.52	3006	SM	>10.0
242	0 37 0	-9.94	142.33	3055	SM	>10.0
242	0 38 0	-12.14	142.14	3101	SM	>10.0
242	0 39 0	-14.33	141.95	3146	SM, ER	9.5
242	0 40 0	-16.49	141.77	3188	SM	9.2
242	0 41 0	-18.63	141.58	3227	SM, ER	8.7
242	0 42 0	-20.76	141.39	3265	SM, ER	~8.0
242	0 43 0	-22.87	141.21	3300	SM, ER	~7.5
242	0 44 0	-24.97	141.03	3333	SM	>7.0
242	0 45 0	-27.05	140.85	3363	SM	>6.0
242	0 46 0	-29.11	140.67	3391	SM, ER	6.5
242	0 47 0	-31.17	140.49	3416	SM	~6.0

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
242	10 14 0	-24.39	176.67	1416		
242	10 15 0	-21.12	176.52	1347		
242	10 16 0	-17.78	176.37	1278	SM, ME, ER	4.2
242	10 17 0	-14.39	176.22	1212	SM, ME, ER	~4.5
242	10 18 0	-10.93	176.07	1147	SM, ME, ER	4.8
242	10 19 0	-7.41	175.91	1084	SP(<3), STV, ME, ER	5.8
242	10 20 0	-3.83	175.76	1024	SP(<3), STV, ME, CE(1.6), ER	~7.5
242	10 21 0	-0.19	175.61	967	SM, ME, CE(2)	>7.0
242	10 22 0	3.50	175.46	912	SM, ME, CE(1.7), ER	7.4
242	10 23 0	7.24	175.31	861	SM, ME, ER	~7.5
242	10 24 0	11.04	175.16	813	SM, ME, ER	~7.5
242	10 25 0	14.89	175.02	769	SM, ME, CE(1.3), ER	6.5
242	10 26 0	18.78	174.89	730	VSP, ME	~5.0
242	10 27 0	22.70	174.76	694	VVSP, ME, ER	4.5
242	10 28 0	26.67	174.64	663	VVSP	4.5
242	10 29 0	30.66	174.53	637		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#242#	21	39	0	44.38	-175.92	1727		
#242#	21	40	0	41.42	-176.02	1801		
#242#	21	41	0	38.51	-176.14	1874		
#242#	21	42	0	35.64	-176.27	1948	SM	>6.5
#242#	21	43	0	32.83	-176.41	2021	SM, ME(<1.7), ER	7.5
#242#	21	44	0	30.06	-176.55	2093	SM, ER	8.9
#242#	21	45	0	27.34	-176.71	2165	SM, ER	9.2
#242#	21	46	0	24.66	-176.87	2236	SM	>10.0
#242#	21	47	0	22.02	-177.04	2305	SM	>10.0
#242#	21	48	0	19.43	-177.21	2374	SM	>10.0
#242#	21	49	0	16.88	-177.38	2442	SM	9.5
#242#	21	50	0	14.36	-177.56	2508	SM	~9.0
#242#	21	51	0	11.88	-177.74	2572	SM, CE(1.2), ER	~8.0
#242#	21	52	0	9.43	-177.92	2635	SM, CE(1.2), ER	~8.0
#242#	21	53	0	7.02	-178.10	2697	SM, ER	6.1
#242#	21	54	0	4.64	-178.29	2756		
#242#	21	55	0	2.29	-178.48	2814		
#242#	21	56	0	-0.03	-178.66	2870		
#242#	21	57	0	-2.32	-178.85	2924		
#242#	21	58	0	-4.59	-179.04	2976		
#242#	21	59	0	-6.83	-179.23	3026		
#242#	22	0	0	-9.05	-179.42	3074		
#242#	22	1	0	-11.25	-179.61	3120		
#242#	22	2	0	-13.42	-179.80	3163		
#242#	22	3	0	-15.58	-179.99	3204		
#242#	22	4	0	-17.72	179.83	3243		
#242#	22	5	0	-19.84	179.64	3279		
#242#	22	6	0	-21.94	179.45	3313		
#242#	22	7	0	-24.03	179.27	3345		
#242#	22	8	0	-26.11	179.09	3374		
#242#	22	9	0	-28.17	178.91	3401		
#242#	22	10	0	-30.22	178.73	3425		
#242#	22	11	0	-32.27	178.56	3447		
#242#	22	12	0	-34.30	178.38	3466		
#242#	22	13	0	-36.32	178.22	3483		
#242#	22	14	0	-38.34	178.05	3497		

OBJECT: 3669 ISIS I PASS SUMMARY FOR KOI NAMUK FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
242	23	48	0	42.36	151.83	1782		
242	23	49	0	39.43	151.72	1855		
242	23	50	0	36.56	151.60	1929		
242	23	51	0	33.73	151.46	2002	SM, ME	>5.0
242	23	52	0	30.95	151.32	2074	SM, ME, CE(1.6)	>5.0
242	23	53	0	28.22	151.16	2146	SM, ME, CE(1.4)	>7.0
242	23	54	0	25.53	151.00	2217	SM, ME(<2), CE(2.3)	7.3
242	23	55	0	22.88	150.84	2287	SM	>8.0
242	23	56	0	20.28	150.67	2356		
242	23	57	0	17.71	150.50	2424		
242	23	58	0	15.19	150.32	2491		
242	23	59	0	12.70	150.14	2556		
243	0	0	0	10.24	149.96	2619		
243	0	1	0	7.82	149.78	2681		
243	0	2	0	5.43	149.59	2741		
243	0	3	0	3.07	149.41	2799		
243	0	4	0	0.75	149.22	2856		
243	0	5	0	-1.55	149.03	2910		
243	0	6	0	-3.83	148.84	2963		
243	0	7	0	-6.08	148.65	3013		
243	0	8	0	-8.30	148.46	3062		
243	0	9	0	-10.50	148.27	3108		
243	0	10	0	-12.68	148.08	3152		
243	0	11	0	-14.85	147.90	3194		
243	0	12	0	-16.99	147.71	3233		
243	0	13	0	-19.11	147.52	3270		
243	0	14	0	-21.22	147.33	3305		
243	0	15	0	-23.31	147.15	3337		
243	0	16	0	-25.39	146.97	3367		
243	0	17	0	-27.46	146.79	3394		
243	0	18	0	-29.52	146.61	3419		
243	0	19	0	-31.56	146.43	3442		
243	0	20	0	-33.59	146.26	3462		
243	0	21	0	-35.62	146.09	3479		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 31 AUGUST 1977 DAY 243

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
243	9 47 0	-19.24	-177.50	1269		
243	9 48 0	-15.84	-177.65	1202	WSP, STV, ET(5)	≥6.5
243	9 49 0	-12.37	-177.80	1138	SP, STV, ET(2.5)	≥7.5
243	9 50 0	-8.85	-177.95	1075	VVSP, STV, RSP, ET(1.7&2.2)	≥9.5
243	9 51 0	-5.26	-178.10	1016	VVSP, STV, RSP, ET(1.7&1.9)	≥9.5
243	9 52 0	-1.62	-178.25	959	VVSP, STV, RSP, ET(1.5)	≥7.0
243	9 53 0	2.08	-178.40	905	VVSP, RSP	≥9.0
243	9 54 0	5.84	-178.55	854	VVSP, STV, RSP, ME	≥9.5
243	9 55 0	9.64	-178.70	807	VVSP, STV, ER	~8.9
243	9 56 0	13.49	-178.84	764	VSP, STV, ET(2), ER	~8.0
243	9 57 0	17.39	-178.98	724	SP, STV, ET(4.9), ER	5.9
243	9 58 0	21.32	-179.11	690	SM, ER	4.8
243	9 59 0	25.29	-179.23	659		
243	10 0 0	29.29	-179.34	633		

OBJECT: 4669 ISIS 1 PASS SUMMARY FOR ROI NAMUR FOR 31 AUGUST 1977 DAY 243

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
243	21	12	0	40.03	-170.03	1885		
243	21	13	0	37.18	-170.15	1958		
243	21	14	0	34.37	-170.29	2031	SM	6.1
243	21	15	0	31.61	-170.43	2103	SM, ER	5.9
243	21	16	0	28.90	-170.59	2175	SM, ER	6.9
243	21	17	0	26.23	-170.74	2246	SM, ER	7.9
243	21	18	0	23.60	-170.91	2315	SM	>5.0
243	21	19	0	21.01	-171.08	2384	SM	8.4
243	21	20	0	18.46	-171.25	2451	SM, ER	8.5
243	21	21	0	15.95	-171.43	2517	SM	8.5
243	21	22	0	13.47	-171.61	2582	SM	8.3
243	21	23	0	11.03	-171.79	2644	SM	>8.0
243	21	24	0	8.63	-171.97	2706	SM, ER	7.1
243	21	25	0	6.25	-172.16	2765	SM, ER	6.7
243	21	26	0	3.90	-172.34	2823	SM	6.5
243	21	27	0	1.59	-172.53	2878	SM, ER	6.7
243	21	28	0	-0.70	-172.72	2932	SM, ER	>6.0
243	21	29	0	-2.97	-172.91	2984	SM	>7.0
243	21	30	0	-5.20	-173.10	3033	SM	>10.0
243	21	31	0	-7.42	-173.29	3081	SM	>10.0
243	21	32	0	-9.61	-173.48	3126	SM	>10.0
243	21	33	0	-11.79	-173.67	3169	SM	>10.0
243	21	34	0	-13.94	-173.86	3210	SM	>10.0
243	21	35	0	-16.08	-174.04	3248	SM	>10.0
243	21	36	0	-18.19	-174.23	3284	SM	>10.0
243	21	37	0	-20.30	-174.42	3318	SM	~8.5
243	21	38	0	-22.39	-174.60	3349	SM	~8.0
243	21	39	0	-24.46	-174.79	3378	SM	~7.7
243	21	40	0	-26.52	-174.97	3405	SM	>4.0
243	21	41	0	-28.57	-175.15	3428	SM	>6.0
243	21	42	0	-30.61	-175.33	3450	SM	>6.0
243	21	43	0	-32.65	-175.50	3469		
243	21	44	0	-34.67	-175.67	3485		
243	21	45	0	-36.69	-175.84	3499		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 31 AUGUST 1977 DAY 243

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
243	23	19	0	43.88	157.94	1792		
243	23	20	0	40.96	157.83	1866		
243	23	21	0	38.09	157.71	1939		
243	23	22	0	35.27	157.58	2012		
243	23	23	0	32.50	157.44	2085		
243	23	24	0	29.77	157.29	2157		
243	23	25	0	27.09	157.13	2227		
243	23	26	0	24.45	156.97	2297		
243	23	27	0	21.85	156.80	2366		
243	23	28	0	19.29	156.63	2434		
243	23	29	0	16.77	156.45	2500	SM, CE(1.3)	>7.0
243	23	30	0	14.29	156.27	2565	SM, CE(1.4)	>5.0
243	23	31	0	11.84	156.09	2628	SM	~9.0
243	23	32	0	9.42	155.91	2690	SM	≥7.0
243	23	33	0	7.04	155.73	2750	SM, CE(1.3), ER	8.2
243	23	34	0	4.69	155.54	2808	SM	8.8
243	23	35	0	2.36	155.35	2864	SM	9.2
243	23	36	0	0.07	155.16	2918	SM	10.1
243	23	37	0	-2.20	154.97	2970	SM	>8.0
243	23	38	0	-4.45	154.78	3020	SM	>10.0
243	23	39	0	-6.67	154.59	3069	SM	>10.0
243	23	40	0	-8.87	154.40	3114	SM	≥10.0
243	23	41	0	-11.05	154.21	3158	SM, ME	9.0
243	23	42	0	-13.21	154.03	3199	SM, ME	~8.5
243	23	43	0	-15.35	153.84	3238	SM, ME	>6.0
243	23	44	0	-17.47	153.65	3275	SM, ME	>5.0
243	23	45	0	-19.58	153.46	3309	SM, ME, ER	~8.0
243	23	46	0	-21.67	153.28	3341	SM, ME	7.7
243	23	47	0	-23.75	153.09	3371	SM, ME	~7.0
243	23	48	0	-25.81	152.91	3398	SM, ME	7.5
243	23	49	0	-27.87	152.73	3423	SM	~7.0
243	23	50	0	-29.91	152.55	3445	SM, ME	>6.5
243	23	51	0	-31.94	152.37	3464		
243	23	52	0	-33.97	152.20	3481		
243	23	53	0	-35.99	152.03	3496		
243	23	54	0	-38.00	151.87	3508		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 6 AUGUST 1977 DAY 218

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#218#	11 29 0	-23.33	155.62	1438		
#218#	11 30 0	-20.18	155.48	1437		
#218#	11 31 0	-17.03	155.35	1437		
#218#	11 32 0	-13.87	155.20	1436		
#218#	11 33 0	-10.72	155.06	1434		
#218#	11 34 0	-7.56	154.91	1433	WSP	≤ 5.0
#218#	11 35 0	-4.41	154.76	1432	WSP	≥ 6.0
#218#	11 36 0	-1.25	154.61	1431	WSP, RSP	≥ 7.0
#218#	11 37 0	1.91	154.46	1429	WSP, RSP, CE(.6)	≥ 5.5
#218#	11 38 0	5.08	154.31	1427	SP, RSP?	≥ 7.0
#218#	11 39 0	8.24	154.16	1426	SP, RSP	≥ 6.0
#218#	11 40 0	11.40	154.02	1424		
#218#	11 41 0	14.57	153.87	1422		
#218#	11 42 0	17.73	153.73	1420		
#218#	11 43 0	20.90	153.59	1418		
#218#	11 44 0	24.06	153.46	1416		
#218#	11 45 0	27.23	153.33	1414		
#218#	11 46 0	30.39	153.21	1411		
#218#	11 47 0	33.56	153.10	1409		
#218#	11 48 0	36.73	153.00	1407		
#218#	11 49 0	39.89	152.92	1405		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KOI NAMUR FOR 7 AUGUST 1977 DAY 219

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#219#	10 13 0	-23.53	173.53	1438		
#219#	10 14 0	-20.38	173.39	1437		
#219#	10 15 0	-17.23	173.25	1436		
#219#	10 16 0	-14.08	173.11	1435	SM, ME	~5.0
#219#	10 17 0	-10.92	172.97	1434	SM, ME	~5.0
#219#	10 18 0	-7.77	172.82	1433	SM, ME	≥5.0
#219#	10 19 0	-4.61	172.67	1431	WSP	≥5.0
#219#	10 20 0	-1.45	172.52	1430	WSP	≥5.0
#219#	10 21 0	1.71	172.37	1428	SP, RSP	≥6.0
#219#	10 22 0	4.87	172.22	1427	SP, ET(2.5), STV, RSP	≥6.0
#219#	10 23 0	8.04	172.07	1425	SP, ET(2.4), STV, RSP	≥5.0
#219#	10 24 0	11.20	171.92	1423	SP, ET(3.0), STV, RSP	≥5.0
#219#	10 25 0	14.37	171.78	1421	SM	≥5.0
#219#	10 26 0	17.53	171.64	1419	OFF	
#219#	10 27 0	20.70	171.50	1417	ME	~5.0
#219#	10 28 0	23.87	171.37	1415	ME, ER	~5.0
#219#	10 29 0	27.03	171.24	1413	ME	~5.0
#219#	10 30 0	30.20	171.12	1410	ME	~5.0
#219#	10 31 0	33.37	171.01	1408	ME	~5.0
#219#	10 32 0	36.53	170.91	1406	SM, ME, CE(1.5)	~5.0
#219#	10 33 0	39.70	170.82	1403	SM, ME, CE(1.6)	6.0
#219#	10 34 0	42.86	170.75	1401	SM, ME, CE(1.2)	5.7

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 7 AUGUST 1977 DAY 219

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#219#	12	9	0	-16.20	144.70	1436		
#219#	12	10	0	-13.05	144.55	1435		
#219#	12	11	0	-9.89	144.41	1433		
#219#	12	12	0	-6.73	144.26	1432		
#219#	12	13	0	-3.57	144.11	1431		
#219#	12	14	0	-0.41	143.96	1429	SM	≤7.0
#219#	12	15	0	2.75	143.81	1428	SM	≤8.0
#219#	12	16	0	5.91	143.66	1426	SM	≤6.0
#219#	12	17	0	9.08	143.51	1424	SM, ER	7.5
#219#	12	18	0	12.24	143.37	1422	SM, ER	7.2
#219#	12	19	0	15.41	143.22	1420	SM, ER	6.0
#219#	12	20	0	18.57	143.08	1418	SM, ME, ER	6.0
#219#	12	21	0	21.74	142.95	1416	SM, ER	6.0
#219#	12	22	0	24.91	142.82	1414	SM	6.0
#219#	12	23	0	28.07	142.69	1412	SM, ME	~5.0
#219#	12	24	0	31.24	142.57	1409	SM, ME	~6.0
#219#	12	25	0	34.41	142.47	1407		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 7 AUGUST 1977 DAY 219

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#219#	22 26 0	41.85	168.85	1362	SM, ME, ER	5.5
#219#	22 27 0	38.65	168.78	1362	SM, ER	5.0
#219#	22 28 0	35.45	168.69	1363	SM, ME, ER	4.8
#219#	22 29 0	32.24	168.58	1363	SM, ME, ER	5.3
#219#	22 30 0	29.04	168.47	1364	SM, ER	5.5
#219#	22 31 0	25.83	168.35	1365	SM, ME, ER	6.0
#219#	22 32 0	22.63	168.22	1366	SM, ER	6.6
#219#	22 33 0	19.42	168.09	1367	SM, ME, CE(1.7), ER	6.8
#219#	22 34 0	16.21	167.95	1368	SM, ER	7.3
#219#	22 35 0	13.00	167.81	1370	SM, ER	7.7
#219#	22 36 0	9.80	167.66	1371	SM, ER	7.7
#219#	22 37 0	6.59	167.52	1372	SM, ER	8.0
#219#	22 38 0	3.38	167.37	1374	SM	8.5
#219#	22 39 0	0.17	167.22	1375	SM, ER	8.8
#219#	22 40 0	-3.03	167.07	1377	SM	>10.0
#219#	22 41 0	-6.23	166.93	1379	SM	>10.0
#219#	22 42 0	-9.44	166.78	1380	SM	>10.0
#219#	22 43 0	-12.63	166.63	1382	SM, ME	10.0
#219#	22 44 0	-15.83	166.49	1384	SM, ME	8.8
#219#	22 45 0	-19.02	166.35	1386	SM, ME	7.5
#219#	22 46 0	-22.22	166.22	1388	SM, ME, CE(1.7)	7.5
#219#	22 47 0	-25.40	166.09	1390		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KOI NAMUR FOR 8 AUGUST 1977 DAY 220

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#220#	9	0	0	-14.28	-168.98	1435		
#220#	9	1	0	-11.13	-169.13	1433		
#220#	9	2	0	-7.97	-169.27	1432	SM	> 7.0
#220#	9	3	0	-4.81	-169.42	1431	SM	> 8.0
#220#	9	4	0	-1.65	-169.57	1429	SM	> 7.0
#220#	9	5	0	1.51	-169.72	1427	WSP, ET(?), ER	7.5
#220#	9	6	0	4.68	-169.87	1426	SM, ER	6.5
#220#	9	7	0	7.84	-170.02	1424	SM	>7.0
#220#	9	8	0	11.01	-170.17	1422	SM	8.9
#220#	9	9	0	14.17	-170.31	1420	SM	9.0
#220#	9	10	0	17.34	-170.45	1418	SM, ME, ER	8.8
#220#	9	11	0	20.51	-170.59	1416	SM, ME, ER	~7.0
#220#	9	12	0	23.67	-170.73	1414	SM, ER	6.5
#220#	9	13	0	26.84	-170.85	1411	SM, ME, ER	5.6
#220#	9	14	0	30.01	-170.97	1409	OFF	
#220#	9	15	0	33.18	-171.08	1407	SM, ME, ER	5.3
#220#	9	16	0	36.34	-171.19	1404	SM, ME, ER	5.5

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR RO1 NAMUR FOR 8 AUGUST 1977 DAY 220

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#220#	10	51	0	-22.70	162.88	1437		
#220#	10	52	0	-19.55	162.75	1436		
#220#	10	53	0	-16.40	162.61	1435		
#220#	10	54	0	-13.25	162.46	1434		
#220#	10	55	0	-10.09	162.32	1433		
#220#	10	56	0	-6.93	162.17	1431		
#220#	10	57	0	-3.77	162.02	1430	SM	> 5.0
#220#	10	58	0	-0.61	161.87	1428	SM, ER	7.5
#220#	10	59	0	2.55	161.72	1427	SM, ER	7.5
#220#	11	0	0	5.71	161.57	1425	SM, ER	7.5
#220#	11	1	0	8.88	161.42	1423	SM, ER	7.8
#220#	11	2	0	12.04	161.28	1421	SM	> 6.0
#220#	11	3	0	15.21	161.13	1419	SM	> 6.0
#220#	11	4	0	18.38	160.99	1417		
#220#	11	5	0	21.54	160.86	1415		
#220#	11	6	0	24.71	160.72	1413		
#220#	11	7	0	27.88	160.60	1410		
#220#	11	8	0	31.05	160.48	1408		
#220#	11	9	0	34.22	160.37	1406		
#220#	11	10	0	37.38	160.28	1404		
#220#	11	11	0	40.55	160.19	1401		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 8 AUGUST 1977 DAY 220

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#220#	23	4	0	40.96	158.23	1362		
#220#	23	5	0	37.76	158.15	1362		
#220#	23	6	0	34.56	158.05	1363		
#220#	23	7	0	31.36	157.95	1364		
#220#	23	8	0	28.15	157.83	1365	SM, ER	6.5
#220#	23	9	0	24.95	157.71	1366	SM, ER	6.8
#220#	23	10	0	21.74	157.58	1367	SM, ER	7.0
#220#	23	11	0	18.53	157.44	1368	SM, ER	7.8
#220#	23	12	0	15.32	157.31	1369	SM, ER	7.9
#220#	23	13	0	12.12	157.16	1371	SM, ER	7.9
#220#	23	14	0	8.91	157.02	1372	SM, ER	7.8
#220#	23	15	0	5.70	156.87	1374	SM, ER	7.8
#220#	23	16	0	2.49	156.72	1375	SM, ER	7.8
#220#	23	17	0	-0.71	156.57	1377	SM, ER	9.0
#220#	23	18	0	-3.91	156.43	1379	SM, ER	10.5
#220#	23	19	0	-7.12	156.28	1380		
#220#	23	20	0	-10.31	156.13	1382		
#220#	23	21	0	-13.51	155.99	1384		
#220#	23	22	0	-16.71	155.85	1386		
#220#	23	23	0	-19.90	155.71	1388		
#220#	23	24	0	-23.09	155.57	1390		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 9 AUGUST 1977 DAY 221

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
221	9 35 0	-22.91	-179.21	1437		
221	9 36 0	-19.76	-179.35	1436		
221	9 37 0	-16.60	-179.49	1435	SM, ME, ER	~4.0
221	9 38 0	-13.45	-179.63	1433	SM	> 4.0
221	9 39 0	-10.29	-179.77	1432	SM, ER	7.0
221	9 40 0	-7.13	-179.92	1431	SM, ER	8.0
221	9 41 0	-3.97	179.93	1429	SM, ER	8.0
221	9 42 0	-0.81	179.78	1428	SM, ER	8.5
221	9 43 0	2.35	179.63	1426	SM, ER	8.0
221	9 44 0	5.52	179.48	1424	SM, ER	6.9
221	9 45 0	8.68	179.33	1422	SM, ER	6.8
221	9 46 0	11.85	179.18	1420	SM, ER	6.3
221	9 47 0	15.02	179.04	1418	SM, ER	5.8
221	9 48 0	18.18	178.90	1416	SM, ME, ER	5.6
221	9 49 0	21.35	178.76	1414	SM, ME, ER	5.7
221	9 50 0	24.52	178.63	1412	SM, ME, ER	5.5
221	9 51 0	27.69	178.51	1409	SM, ME, ER	5.5
221	9 52 0	30.86	178.39	1407	SM, ME, ER	5.7
221	9 53 0	34.03	178.28	1405	SM, ME, ER	5.6
221	9 54 0	37.20	178.18	1402	SM, ME, CE(1.8), ER	5.6
221	9 55 0	40.36	178.10	1400	SM, ME, ER	5.6

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 9 AUGUST 1977 DAY 221

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
221	11	29	0	-21.87	152.24	1436		
221	11	30	0	-18.72	152.10	1435		
221	11	31	0	-15.57	151.96	1434		
221	11	32	0	-12.41	151.82	1433		
221	11	33	0	-9.26	151.67	1432		
221	11	34	0	-6.10	151.52	1430		
221	11	35	0	-2.94	151.37	1429		
221	11	36	0	0.23	151.22	1427		
221	11	37	0	3.39	151.07	1425	SM	> 5.0
221	11	38	0	6.56	150.92	1423	SM	> 6.0
221	11	39	0	9.72	150.77	1421	SM	> 6.0
221	11	40	0	12.89	150.63	1419	SM	> 4.0
221	11	41	0	16.06	150.49	1417	SM	4.8
221	11	42	0	19.22	150.35	1415		
221	11	43	0	22.39	150.21	1413		
221	11	44	0	25.56	150.08	1411		
221	11	45	0	28.73	149.96	1408		
221	11	46	0	31.90	149.84	1406		
221	11	47	0	35.07	149.74	1404		
221	11	48	0	38.24	149.64	1401		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 9 AUGUST 1977 DAY 221

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
221	21	48	0	41.12	176.13	1362		
221	21	49	0	37.92	176.05	1362	SM, ME, ER	6.0
221	21	50	0	34.72	175.96	1363	SM, CE(1.8), ER	6.5
221	21	51	0	31.52	175.85	1364	SM, ER	7.5
221	21	52	0	28.31	175.74	1365	SM, ER	7.4
221	21	53	0	25.11	175.62	1366	SM, ER	7.5
221	21	54	0	21.90	175.49	1367	SM, ER	7.3
221	21	55	0	18.70	175.35	1368	SM, ER	~8.0
221	21	56	0	15.19	175.21	1370	SM, ER	8.2
221	21	57	0	12.28	175.07	1371	SM, ER	8.0
221	21	58	0	9.07	174.93	1373	SM, ER	~7.8
221	21	59	0	5.87	174.78	1374	SM, ER	7.5
221	22	0	0	2.66	174.63	1376	SM, ER	8.0
221	22	1	0	-0.54	174.48	1378	SM, ER	8.8
221	22	2	0	-3.74	174.34	1380	SM, ER	>8.0
221	22	3	0	-6.95	174.19	1381	SM, ER	10.2
221	22	4	0	-10.14	174.04	1383	SM, ER	9.5
221	22	5	0	-13.34	173.90	1385	SM, ER	9.5
221	22	6	0	-16.53	173.76	1387	SM, ER	8.8
221	22	7	0	-19.73	173.62	1389	SM, ER	>8.0
221	22	8	0	-22.91	173.48	1391		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 10 AUGUST 1977 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
222	10 12 0	-25.22	170.28	1437		
222	10 13 0	-22.07	170.14	1436	SM, ME	~6.0
222	10 14 0	-18.92	170.01	1435	SM, ME, ER	~5.0
222	10 15 0	-15.77	169.87	1434	SM	~5.0
222	10 16 0	-12.61	169.72	1432	SM, ME, ER	~4.0
222	10 17 0	-9.45	169.58	1431	SM, ME, ER	3.3
222	10 18 0	-6.29	169.43	1429	SM, ME, ER	~4.0
222	10 19 0	-3.13	169.28	1428	SM, ME, CE(1.5), ER	7.5
222	10 20 0	0.03	169.13	1426	SM	≥8.0
222	10 21 0	3.20	168.98	1424	SM	8.0
222	10 22 0	6.36	168.83	1422	SM	8.0
222	10 23 0	9.53	168.68	1420	SM	~8.0
222	10 24 0	12.70	168.54	1418	SM, ME	~7.0
222	10 25 0	15.87	168.39	1416	SM, ME	~7.0
222	10 26 0	19.03	168.25	1414	SM, ME, ER	6.0
222	10 27 0	22.20	168.12	1412	SM, ME, ER	6.0
222	10 28 0	25.37	167.99	1410	SM, ME, ER	~6.0
222	10 29 0	28.54	167.87	1407	SM, ME, ER	5.2
222	10 30 0	31.71	167.75	1405	SM, ME, ER	~5.0
222	10 31 0	34.88	167.64	1403	SM, ME, ER	~5.0
222	10 32 0	38.05	167.55	1400	SM, ME, ER	5.5
222	10 33 0	41.22	167.47	1398	SM, ME, ER	5.7

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 10 AUGUST 1977 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
222	22 25 0	43.43	165.57	1361	SM, ME, ER	5.5
222	22 26 0	40.23	165.51	1362	SM, ME, ER	6.0
222	22 27 0	37.03	165.42	1363	SM, ME, ER	6.2
222	22 28 0	33.83	165.33	1364	SM, ME, ER	6.0
222	22 29 0	30.63	165.22	1365	SM, ER	6.0
222	22 30 0	27.42	165.10	1366	SM, ER	6.3
222	22 31 0	24.22	164.98	1367	SM, ER	7.0
222	22 32 0	21.01	164.85	1368	SM, ER	8.0
222	22 33 0	17.80	164.71	1370	SM, ER	8.0
222	22 34 0	14.60	164.57	1371	SM, ER	8.0
222	22 35 0	11.39	164.43	1373	SM, ER	7.8
222	22 36 0	8.18	164.28	1374	SM, ER	8.0
222	22 37 0	4.98	164.13	1376	SSP, ER	8.6
222	22 38 0	1.78	163.99	1378	SM, ER	9.2
222	22 39 0	-1.43	163.84	1379	SM	9.9
222	22 40 0	-4.63	163.69	1381	SM	> 10.0
222	22 41 0	-7.83	163.54	1383	SM	> 10.0
222	22 42 0	-11.03	163.39	1385	SM	> 10.0
222	22 43 0	-14.22	163.25	1387	SM	> 10.0
222	22 44 0	-17.41	163.11	1389	SM	> 10.0
222	22 45 0	-20.60	162.97	1391		
222	22 46 0	-23.79	162.84	1393		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 11 AUGUST 1977 DAY 223

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
223	10	50	0	-24.38	159.63	1436		
223	10	51	0	-21.23	159.50	1435	SM, CE	~5.0
223	10	52	0	-18.08	159.36	1434	SM, ME	?
223	10	53	0	-14.93	159.22	1432	SM, ME	?
223	10	54	0	-11.77	159.08	1431	SM, ME	~5.0
223	10	55	0	-8.61	158.93	1430	SM, ME	~5.0
223	10	56	0	-5.45	158.78	1428	SM, ME	?
223	10	57	0	-2.29	158.63	1426	SM, ME	?
223	10	58	0	0.88	158.48	1424	SM, ME	> 9.0
223	10	59	0	4.04	158.33	1422	WSP, ME	> 8.0
223	11	0	0	7.21	158.18	1421	WSP, ME	> 8.0
223	11	1	0	10.38	158.04	1418	SM, ME	> 7.0
223	11	2	0	13.55	157.89	1416	SM, ME	> 7.0
223	11	3	0	16.72	157.75	1414	WSP, ME	> 5.0
223	11	4	0	19.89	157.61	1412	WSP, ME	> 6.0
223	11	5	0	23.06	157.48	1410	SM, ME	5.7
223	11	6	0	26.23	157.35	1407	SM, ME	5.8
223	11	7	0	29.40.	157.23	1405	SM, ME, ER	6.0
223	11	8	0	32.57	157.11	1403	SM, ME	6.0
223	11	9	0	35.74	157.01	1400	SM, ME, ER	6.0
223	11	10	0	38.92	156.92	1398	SM, ME, ER	6.0
223	11	11	0	42.09	156.84	1396	SM, ME, ER	6.5

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 12 AUGUST 1977 DAY 224

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
224	21	47	0	42.69	172.86	1362		
224	21	48	0	39.49	172.79	1363		
224	21	49	0	36.29	172.70	1364	SM, ER	5.5
224	21	50	0	33.09	172.60	1365	SM, ER	5.9
224	21	51	0	29.89	172.49	1366	SM, ER	6.3
224	21	52	0	26.69	172.37	1367	SM, ER	7.0
224	21	53	0	23.48	172.24	1368	SM, ER	8.3
224	21	54	0	20.28	172.11	1370	SM, ER	8.3
224	21	55	0	17.07	171.97	1371	SM, ER	8.3
224	21	56	0	13.87	171.83	1373	SM, ER	8.4
224	21	57	0	10.66	171.69	1375	SM, ER	7.8
224	21	58	0	7.46	171.54	1376	SM, ER	7.7
224	21	59	0	4.25	171.40	1378	SM, ER	7.6
224	22	0	0	1.05	171.25	1380	SM	9.0
224	22	1	0	-2.15	171.10	1382	OFF	
224	22	2	0	-5.35	170.95	1384	SM	≤ 9.0
224	22	3	0	-8.55	170.80	1386	SM	>10.0
224	22	4	0	11.74	170.66	1388	SM	>10.0
224	22	5	0	-14.93	170.51	1390	SM	>10.0
224	22	6	0	-18.12	170.37	1392	SM, ME, ER	~ 8.0
224	22	7	0	-21.31	170.24	1394	SM, ER	6.5
224	22	8	0	-24.49	170.11	1396	SM, ME, ER	~ 7.0

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 13 AUGUST 1977 DAY 225

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#225#	10 12 0	-23.74	166.90	1434	SM, ME	4.0
#225#	10 13 0	-20.59	166.76	1433	SM, ME	3.5
#225#	10 14 0	-17.43	166.62	1432	SM, ME	3.8
#225#	10 15 0	-14.27	166.48	1430	SM, ME, ER	3.5
#225#	10 16 0	-11.12	166.34	1429	SM, ME, ER	3.5
#225#	10 17 0	-7.95	166.19	1427	SM, ER	5.0
#225#	10 18 0	-4.79	166.04	1425	SM, ER	7.5
#225#	10 19 0	-1.63	165.89	1424	SM, ER	8.5
#225#	10 20 0	1.54	165.74	1422	SM, ER	≥ 9.0
#225#	10 21 0	4.71	165.59	1420	SM	9.2
#225#	10 22 0	7.88	165.44	1418	SM	≥ 9.0
#225#	10 23 0	11.05	165.30	1415	SM	≥ 9.0
#225#	10 24 0	14.22	165.15	1413	SM	> 7.0
#225#	10 25 0	17.39	165.01	1411	SM	6.0
#225#	10 26 0	20.57	164.87	1409	SM	4.8
#225#	10 27 0	23.74	164.74	1406	SM	4.7
#225#	10 28 0	26.91	164.61	1404	SM, ER	4.8
#225#	10 29 0	30.09	164.49	1402	SM, ER	4.9
#225#	10 30 0	33.26	164.38	1399	SM	6.0
#225#	10 31 0	36.43	164.28	1397	SM, ME, ER	5.5
#225#	10 32 0	39.61	164.19	1395	SM, ME	5.5
#225#	10 33 0	42.78	164.12	1392	SM, ME, ER	5.5

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 14 AUGUST 1977 DAY 226

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#226#	8	57	0	-20.77	-175.33	1432		
#226#	8	58	0	-17.62	-175.47	1431		
#226#	8	59	0	-14.46	-175.61	1430		
#226#	9	0	0	-11.30	-175.75	1428		
#226#	9	1	0	-8.14	-175.90	1426		
#226#	9	2	0	-4.98	-176.05	1424	VVSP, ET(1.9), STV	≥ 7.0
#226#	9	3	0	-1.81	-176.20	1423	VVSP, ET(1.5)	≥ 4.0
#226#	9	4	0	1.36	-176.35	1421	VVSP, ET(1.4)	≥ 4.0
#226#	9	5	0	4.53	-176.50	1419	VVSP, ET(2.2), STV, RSP	≥ 5.0
#226#	9	6	0	7.70	-176.65	1416	VVSP, ET(2.3), STV	≥ 5.0
#226#	9	7	0	10.87	-176.79	1414	VVSP, ET(2.8), STV, RSP	≥ 6.0
#226#	9	8	0	14.04	-176.94	1412	VSP, ET(2.5), STV	≥ 5.0
#226#	9	9	0	17.21	-177.08	1410	WSP, ME	≥ 9.0
#226#	9	10	0	20.39	-177.22	1407	WSP(>5), ME	≥ 7.0
#226#	9	11	0	23.56	-177.35	1405	SM, ME	≥ 5.0
#226#	9	12	0	26.74	-177.48	1403	SM, ME	5.8
#226#	9	13	0	29.91	-177.60	1400	SM, ME, ER	5.5
#226#	9	14	0	33.09	-177.71	1398		
#226#	9	15	0	36.26	-177.81	1396		
#226#	9	16	0	39.43	-177.90	1393		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 14 AUGUST 1977 DAY 226

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
226	10 50 0	-22.89	156.25	1433		
226	10 51 0	-19.74	156.12	1432		
226	10 52 0	-16.58	155.98	1431		
226	10 53 0	-13.42	155.84	1429		
226	10 54 0	-10.26	155.69	1427		
226	10 55 0	-7.10	155.54	1426		
226	10 56 0	-3.94	155.39	1424	SM, ME	≥ 5.0
226	10 57 0	-0.77	155.24	1422	SM, ME, ER	7.0
226	10 58 0	2.40	155.09	1420	SM	9.0
226	10 59 0	5.57	154.94	1418	SP(<2), STV	≥ 9.0
226	11 0 0	8.74	154.80	1416	SP(<2), STV	> 6.0
226	11 1 0	11.91	154.65	1413	SM, ME	≥ 4.0
226	11 2 0	15.08	154.51	1411	SM, ME	≥ 5.0
226	11 3 0	18.26	154.37	1409	SP, ME, STV	≥ 4.0
226	11 4 0	21.43	154.23	1407	SP, ME	≥ 3.0
226	11 5 0	24.61	154.10	1404	SP, ME, ER	5.0
226	11 6 0	27.78	153.97	1402	SM, ME, CE(1.5)	5.8
226	11 7 0	30.96	153.86	1399	SM, ME, ER	5.8
226	11 8 0	34.13	153.75	1397		
226	11 9 0	37.30	153.65	1395		
226	11 10 0	40.48	153.57	1392		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 14 AUGUST 1977 DAY 226

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
226	23 3 0	40.89	151.61	1363		
226	23 4 0	37.69	151.53	1364		
226	23 5 0	34.49	151.43	1365		
226	23 6 0	31.29	151.33	1367	SM	6.5
226	23 7 0	28.09	151.21	1368	SM, ER	6.6
226	23 8 0	24.89	151.09	1369	SM, ER	8.0
226	23 9 0	21.68	150.96	1371	SM, ER	8.5
226	23 10 0	18.48	150.82	1373	SM, ER	8.5
226	23 11 0	15.28	150.69	1374	SM, ER	8.5
226	23 12 0	12.07	150.54	1376	SM, ER	8.2
226	23 13 0	8.87	150.40	1378	SM, ER	8.5
226	23 14 0	5.67	150.25	1380	SM, ER	8.0
226	23 15 0	2.47	150.10	1382	SM, ER	9.0
226	23 16 0	-0.73	149.95	1384	SM, ER	> 10.0
226	23 17 0	-3.93	149.80	1386	SM, ER	> 10.0
226	23 18 0	-7.13	149.66	1388	SM, ER	> 10.0
226	23 19 0	-10.32	149.51	1390		
226	23 20 0	-13.51	149.37	1392		
226	23 21 0	-16.70	149.22	1394		
226	23 22 0	-19.88	149.09	1396		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 15 AUGUST 1977 DAY 227

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MUZ
#227#	9	34	0	-23.08	174.16	1433		
#227#	9	35	0	-19.93	174.03	1431		
#227#	9	36	0	-16.77	173.89	1430	SM, ME, CE(1.8)	~4.0
#227#	9	37	0	-13.61	173.74	1428	SM, ME	6.5
#227#	9	38	0	-10.45	173.60	1426	SM, ME, ER	5.8
#227#	9	39	0	-7.29	173.45	1425	SM, ME, ER	≥5.0
#227#	9	40	0	-4.12	173.30	1423	SM, ME, ER	≥6.0
#227#	9	41	0	-0.95	173.15	1421	SM, ER	8.8
#227#	9	42	0	2.22	173.00	1419	SM, ER	8.5
#227#	9	43	0	5.39	172.85	1417	SM, ER	8.2
#227#	9	44	0	8.56	172.71	1414	SM	≥8.0
#227#	9	45	0	11.73	172.56	1412	SM, CE(1.3), ME, ER	7.5
#227#	9	46	0	14.91	172.42	1410	SM, ME	6.0
#227#	9	47	0	18.08	172.27	1408	SM, ME	≥4.0
#227#	9	48	0	21.26	172.14	1405	SM, ME	6.0
#227#	9	49	0	24.43	172.01	1403	SM, ME, ER	6.0
#227#	9	50	0	27.61	171.88	1401	SM, ME, CE(1.6)	5.6
#227#	9	51	0	30.78	171.76	1398	SM, ME, CE(1.8)	5.6
#227#	9	52	0	33.96	171.65	1396	SM, ME	≥5.0
#227#	9	53	0	37.14	171.56	1393	SM, ME	5.7
#227#	9	54	0	40.31	171.47	1391		
#227#	9	55	0	43.49	171.40	1389		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 15 AUGUST 1977 DAY 227

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
227	11 30 0	-15.73	145.33	1429		
227	11 31 0	-12.57	145.19	1427		
227	11 32 0	-9.41	145.04	1426		
227	11 33 0	-6.25	144.89	1424		
227	11 34 0	-3.08	144.74	1422	SM, ME, CE(1.5)	~5.0
227	11 35 0	0.09	144.60	1420	SM, ME, ER	8.5
227	11 36 0	3.26	144.45	1418	SM	≥7.0
227	11 37 0	6.43	144.30	1416	SM	≥7.0
227	11 38 0	9.60	144.15	1414	SM, ER	7.0
227	11 39 0	12.77	144.00	1411	SM	≥6.0
227	11 40 0	15.95	143.86	1409	SM	≥6.0
227	11 41 0	19.12	143.72	1407	SM, ME	~5.5
227	11 42 0	22.30	143.59	1404		
227	11 43 0	25.48	143.46	1402		
227	11 44 0	28.65	143.33	1400		
227	11 45 0	31.83	143.22	1397		
227	11 46 0	35.00	143.11	1395		
227	21 47 0	41.04	169.52	1363		
227	21 48 0	37.85	169.44	1365	SM, ME, ER	5.5
227	21 49 0	34.65	169.34	1366	SM, ME	6.1
227	21 50 0	31.45	169.24	1367	SM, ME, ER	6.9
227	21 51 0	28.24	169.12	1369	SM, ME, ER	6.8
227	21 52 0	25.04	169.00	1370	SM, ME, CE(1.8), ER	6.5
227	21 53 0	21.84	168.87	1372	SM, ME(<3), ER	6.9
227	21 54 0	18.64	168.73	1373	SM, ME(<3), ER	7.2
227	21 55 0	15.43	168.60	1375	SM, ME(<2), ER	7.5
227	21 56 0	12.23	168.45	1377	SP(<2), STV, ER	7.5
227	21 57 0	9.03	168.31	1379	SP(<2), STV, ER	7.1
227	21 58 0	5.83	168.16	1381	SP(<2), CE(1.6), STV, ER	7.5
227	21 59 0	2.63	168.01	1383	SP(<2), STV, ER	7.8
227	22 0 0	-0.57	167.86	1385	SP(<2), STV, ER	9.3
227	22 1 0	-3.77	167.71	1387	OFF	
227	22 2 0	-6.96	167.57	1389	SM, CE(1.6), ER	9.5
227	22 3 0	-10.16	167.42	1391	SM, ME(<2), ER	9.2
227	22 4 0	-13.35	167.28	1393	SM, ME(<2), CE(1.7), ER	8.5
227	22 5 0	-16.53	167.13	1395	SM, ME(<2.5), ER	8.0
227	22 6 0	-19.72	166.99	1397	SM, ME, ER	7.5
227	22 7 0	-22.90	166.86	1400	SM, ME, ER	6.5

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR AUGUST 1977 DAY 228

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
228	8 21 0	-13.79	-168.35	1427		
228	8 22 0	-10.63	-168.49	1425	VSP, ET(2.0), ME	≥6.0
228	8 23 0	-7.47	-168.64	1424	VVSP, ET(1.9)	≥6.0
228	8 24 0	-4.30	-168.79	1422	VVSP, ET(1.9), STV	≥7.0
228	8 25 0	-1.13	-168.94	1420	VVSP, ET(1.85), STV	≥6.0
228	8 26 0	2.04	-169.09	1418	VVSP, ET(1.9), STV	≥6.0
228	8 27 0	5.21	-169.24	1415	VVSP, ET(1.75), STV	≥5.0
228	8 28 0	8.38	-169.39	1413	VVSP, ET(2.0), STV	≥6.0
228	8 29 0	11.56	-169.53	1411	VVSP, ET(2.1), STV	≥6.0
228	8 30 0	14.73	-169.68	1409	SP, ET(4.0), STV	≥5.0
228	8 31 0	17.91	-169.82	1406	WSP, ET(8.0), STV	≥9.0
228	8 32 0	21.08	-169.95	1404	SM, ER	7.0
228	8 33 0	24.26	-170.09	1402	SM, ER	6.5
228	8 34 0	27.44	-170.21	1399	SP(<1.5), ME, STV, ER	6.8
228	8 35 0	30.61	-170.33	1397		
228	8 36 0	33.79	-170.44	1394		
228	8 37 0	36.97	-170.54	1392		

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228	10 11 0	-25.38	163.65	1433		
228	10 12 0	-22.23	163.52	1431		
228	10 13 0	-19.07	163.38	1430	SM, ME, CE(1.7), ER	3.5
228	10 14 0	-15.91	163.24	1428	SM, ME, CE(1.7), ER	3.8
228	10 15 0	-12.75	163.10	1426	SM, ME(<1.7)	≤5.0
228	10 16 0	-9.59	162.95	1425	SM	≤6.0
228	10 17 0	-6.43	162.80	1423	SM	≤4.0
228	10 18 0	-3.26	162.65	1421	SM	≤7.0
228	10 19 0	-0.09	162.50	1419	SM	≤6.0
228	10 20 0	3.08	162.35	1417	VSP, STV, ET(4.1)	≤6.0
228	10 21 0	6.25	162.21	1415	VSP, STV, ET(4.1), RSP	≤6.0
228	10 22 0	9.43	162.06	1412	SP, STV, ET(4.9), RSP	≤6.0
228	10 23 0	12.60	161.91	1410	SP, STV, ET(5.1), RSP	≤7.0
228	10 24 0	15.78	161.77	1408	SP, STV, ET(8.5)	≤9.0
228	10 25 0	18.95	161.63	1405	SM	~8.0
228	10 26 0	22.13	161.49	1403	SM, ME, ER	7.0
228	10 27 0	25.30	161.36	1401	SM, ME, ER	6.8
228	10 28 0	28.48	161.24	1398	SM, ME, ER	6.5
228	10 29 0	31.66	161.13	1396	SM, ME, ER	6.2
228	10 30 0	34.84	161.02	1394	SM, ME, CE(1.5)	5.5
228	10 31 0	38.01	160.93	1391	SM, ME, CE(1.8)	5.6
228	10 32 0	41.19	160.85	1389	SM, ME, ER	5.6

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OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 17 AUGUST 1977 DAY 229

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
229	8	56	0	-22.41	-178.58	1430		
229	8	57	0	-19.25	-178.71	1429		
229	8	58	0	-16.10	-178.85	1427		
229	8	59	0	-12.93	-178.99	1425		
229	9	0	0	-9.77	-179.14	1424		
229	9	1	0	-6.60	-179.29	1422		
229	9	2	0	-3.44	-179.44	1420	VVSP, ET(1.75), RSP, STV, ME	≥ 6.0
229	9	3	0	-0.27	-179.59	1418	VVSP, ET(1.65), RSP, STV, ME	≥ 6.0
229	9	4	0	2.90	-179.74	1416	VVSP, ET(1.5), RSP, STV, ME	≥ 6.0
229	9	5	0	6.08	-179.88	1413	VVSP, ET(1.45), RSP, STV	≥ 6.0
229	9	6	0	9.25	179.97	1411	VVSP, ET(1.65), RSP, STV	≥ 5.0
229	9	7	0	12.43	179.82	1409	VVSP, ET(1.82), RSP, STV	≤ 5.0
229	9	8	0	15.60	179.68	1407	VSP, ET(3.3), RSP, STV	≤ 7.0
229	9	9	0	18.78	179.54	1404	SP, ET(4.3), STV	≤ 8.0
229	9	10	0	21.96	179.40	1402	SM, ER	8.5
229	9	11	0	25.14	179.27	1399	SM, ER	8.6
229	9	12	0	28.32	179.15	1397	SM, ER, ME	7.3
229	9	13	0	31.49	179.03	1395	SM, ER, ME	6.8
229	9	14	0	34.67	178.93	1392	SM, ER, ME	6.2
229	9	15	0	37.85	178.83	1390		
229	9	16	0	41.03	178.75	1388		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 16 AUGUST 1977 DAY 228

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
229	10	50	0	-21.37	152.87	1430		
229	10	51	0	-18.22	152.74	1428		
229	10	52	0	-15.06	152.59	1427		
229	10	53	0	-11.89	152.45	1425		
229	10	54	0	-8.73	152.30	1423	SM	5.0
229	10	55	0	-5.56	152.16	1421	WSP, ET(5.5), STV	≥ 6.0
229	10	56	0	-2.40	152.01	1419	VSP, ET(3.0), STV, RSP	≥ 6.0
229	10	57	0	0.78	151.86	1417	VVSP, ET(2.6), STV	≥ 5.0
229	10	58	0	3.95	151.71	1415	VVSP, ET(2.3), STV	≥ 5.0
229	10	59	0	7.12	151.56	1413	VVSP, ET(2.2), STV, RSP	≥ 5.0
229	11	0	0	10.30	151.41	1410	VVSP, ET(2.3), STV, RSP	≥ 6.0
229	11	1	0	13.47	151.27	1408	VVSP, ET(2.5), STV, RSP, ME	≥ 5.0
229	11	2	0	16.65	151.12	1406	VSP, ET(3.2), STV	≥ 6.0
229	11	3	0	19.83	150.99	1403	WSP, ET(5.2), STV	≥ 8.0
229	11	4	0	23.00	150.85	1401	SM, ER	8.0
229	11	5	0	26.18	150.72	1399	SM, ME, ER	7.5
229	11	6	0	29.36	150.60	1396		
229	11	7	0	32.54	150.49	1394		
229	11	8	0	35.72	150.39	1391		
229	11	9	0	38.90	150.30	1389		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 17 AUGUST 1977 DAY 229

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
229	21	9	0	40.29	176.80	1365	SM, ME, ER	5.0
229	21	10	0	37.09	176.71	1366	SM, ME, ER	5.0
229	21	11	0	33.89	176.62	1367	SM, ME, ER	5.3
229	21	12	0	30.69	176.51	1369	SM, ME, ER	5.7
229	21	13	0	27.49	176.39	1371	SM, ME, ER	5.7
229	21	14	0	24.29	176.27	1372	SM, ME, ER	6.0
229	21	15	0	21.09	176.14	1374	SM, ME, ER	7.0
229	21	16	0	17.89	176.00	1376	SM, ME, ER	7.5
229	21	17	0	14.69	175.86	1378	SM, ME, ER	7.3
229	21	18	0	11.49	175.72	1380	SM, ME, CE(1.5), ER	7.0
229	21	19	0	8.29	175.57	1382	SM, SP(<2.5), ER	6.5
229	21	20	0	5.09	175.42	1384	SM, SP(<2.5), ER	7.5
229	21	21	0	1.89	175.28	1386	SM, SP(2.0), ER	8.5
229	21	22	0	-1.31	175.13	1388	OFF	
229	21	23	0	-4.50	174.98	1390	SM, ME	>10.0
229	21	24	0	-7.69	174.83	1392	SM, ME	>10.0
229	21	25	0	-10.88	174.68	1394	SM	~10.0
229	21	26	0	-14.07	174.54	1397	SM, ME, CE(1.5), ER	8.6
229	21	27	0	-17.25	174.40	1399	SM, ME, ER	8.0
229	21	28	0	-20.43	174.26	1401	SM, ME, CE(1.7), ER	6.5
229	21	29	0	-23.61	174.13	1403	SM, ME, ER	6.0

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 18 AUGUST 1977 DAY 230

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
230	9	33	0	-24.71	170.91	1430		
230	9	34	0	-21.55	170.78	1429	SM, ME, CE(1.8), ER	~4.5
230	9	35	0	-18.39	170.64	1427	SM, ME, CE(1.8), ER	4.3
230	9	36	0	-15.23	170.50	1426	SM, ME, CE(1.6), ER	4.2
230	9	37	0	-12.07	170.36	1424	SM, ME, CE(1.5)	4.9
230	9	38	0	-8.91	170.21	1422	SM, ME, ER	~6.0
230	9	39	0	-5.74	170.06	1420	SM, ME, CE(1.4), ER	~7.0
230	9	40	0	-2.57	169.92	1418	SM, ME, CE(1.3), ER	8.6
230	9	41	0	0.60	169.77	1416	SM, ME, ER	8.9
230	9	42	0	3.77	169.62	1414	OFF	
230	9	43	0	6.95	169.47	1411	SM, ME, ER	8.8
230	9	44	0	10.13	169.32	1409	SM, ME, ER	8.5
230	9	45	0	13.30	169.18	1407	SM, ME, ER	7.5
230	9	46	0	16.48	169.03	1404	SM, ME, CE(1.3)	≥6.0
230	9	47	0	19.66	168.89	1402	SM, ME, ER	5.2
230	9	48	0	22.84	168.76	1400	SM, ME, CE(1.3)	4.5
230	9	49	0	26.02	168.63	1397	SM, ME, ER	4.5
230	9	50	0	29.20	168.51	1395	SM, ME, ER	4.7
230	9	51	0	32.38	168.40	1393	SM, ME, CE(1.8), ER	5.5
230	9	52	0	35.56	168.29	1390	SM, ME, CE(1.7), ER	5.6
230	9	53	0	38.74	168.20	1388	SM, ME, CE(2.0), ER	5.6
230	9	54	0	41.92	168.13	1386	SM, ME, ER	6.2

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 18 AUGUST 1977 DAY 230

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
230	21	46	0	42.58	166.24	1365		
230	21	47	0	39.38	166.17	1366	SM, ME, ER	6.4
230	21	48	0	36.18	166.08	1367	SM, ME, ER	6.0
230	21	49	0	32.98	165.98	1369	SM, ME, CE(1.7), ER	6.0
230	21	50	0	29.79	165.87	1370	SM, ME, CE(1.6), ER	6.0
230	21	51	0	26.59	165.75	1372	SM, ME, ER	6.0
230	21	52	0	23.39	165.63	1374	SM, ME, CE(1.7), ER	6.1
230	21	53	0	20.18	165.49	1376	SM, ME, ER	7.4
230	21	54	0	16.98	165.36	1377	SM, ME, ER	7.5
230	21	55	0	13.78	165.21	1379	SM, ME, ER	7.4
230	21	56	0	10.58	165.07	1381	SM, SP(<2), ER	7.4
230	21	57	0	7.39	164.92	1384	SM, SP(<2), ER	8.0
230	21	58	0	4.19	164.78	1386	SM, SP(<2), ER	8.5
230	21	59	0	0.99	164.63	1388	SM, SP(<2)	9.8
230	22	0	0	-2.20	164.48	1390	SM, ME	>10.0
230	22	1	0	-5.39	164.33	1392	SM, ME	>10.0
230	22	2	0	-8.58	164.18	1394	SM, ME	>10.0
230	22	3	0	-11.77	164.04	1396	SM, ME	>10.0
230	22	4	0	-14.96	163.89	1399	SM, ME, ER	9.0
230	22	5	0	-18.14	163.75	1401	SM, ME, CE(1.7), ER	7.9
230	22	6	0	-21.32	163.62	1403	SM, ME, CE(1.8), ER	7.5
230	22	7	0	-24.49	163.49	1405	SM, ME, ER	7.0

OBJECT: 5104_4 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 19 AUGUST 1977 DAY 231

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
231	8 19 0	-18.57	-171.45	1426		
231	8 20 0	-15.41	-171.59	1425		
231	8 21 0	-12.25	-171.73	1423		
231	8 22 0	-9.08	-171.88	1421		
231	8 23 0	-5.91	-172.03	1419		
231	8 24 0	-2.74	-172.17	1417	SM, ER	< 9.0
231	8 25 0	0.43	-172.32	1415	SM, ER	7.1
231	8 26 0	3.61	-172.47	1412	SM, ER	7.5
231	8 27 0	6.78	-172.62	1410	SM, ER	7.2
231	8 28 0	9.96	-172.77	1408	SM, ER	7.5
231	8 29 0	13.14	-172.92	1405	SM, ER	8.0
231	8 30 0	16.32	-173.06	1403	SM, ER	~ 8.5
231	8 31 0	19.49	-173.20	1401	SM, ER	8.0
231	8 32 0	22.68	-173.33	1398		
231	8 33 0	25.86	-173.46	1396		
231	8 34 0	29.04	-173.58	1394		
231	8 35 0	32.22	-173.70	1391		
231	8 36 0	35.40	-173.80	1389		
231	8 37 0	38.58	-173.89	1387		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 19 AUGUST 1977 DAY 231

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
231	10 13 0	-17.53	160.00	1426	SM, ME, ER	4.1
231	10 14 0	-14.37	159.86	1424	SM, ME, CE(1.7), ER	4.7
231	10 15 0	-11.21	159.71	1422	SM, ME, CE(1.6), ER	4.8
231	10 16 0	-8.04	159.57	1420	SM, ME, ER	~7.5
231	10 17 0	-4.87	159.42	1418	SM, ME, ER	8.2
231	10 18 0	-1.70	159.27	1416	SM, WSP(NP), ER	8.7
231	10 19 0	1.47	159.12	1414	SM, WSP(NP)	8.8
231	10 20 0	4.65	158.97	1411	SM	8.7
231	10 21 0	7.83	158.82	1409	SM, RSP(NP)	8.4
231	10 22 0	11.00	158.67	1407	SM, ER	8.0
231	10 23 0	14.18	158.53	1405	SM	≲5.0
231	10 24 0	17.36	158.39	1402	SM	≲6.0
231	10 25 0	20.54	158.25	1400	SM, ME	≲5.0
231	10 26 0	23.72	158.12	1397	SM, ME, ER	~4.2
231	10 27 0	26.90	157.99	1395	SM, ME, CE(1.7), ER	5.0
231	10 28 0	30.08	157.87	1393		
231	10 29 0	33.26	157.76	1390		
231	10 30 0	36.45	157.66	1388		
231	10 31 0	39.63	157.57	1386		
231	10 32 0	42.81	157.50	1383		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 20 AUGUST 1977 DAY 232

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#232#	8	55	0	-24.02	178.18	1428		
#232#	8	56	0	-20.86	178.05	1426		
#232#	8	57	0	-17.70	177.91	1425		
#232#	8	58	0	-14.54	177.77	1423		
#232#	8	59	0	-11.38	177.62	1421		
#232#	9	0	0	-8.21	177.48	1419	SM	10.5
#232#	9	1	0	-5.04	177.33	1417	SM	10.5
#232#	9	2	0	-1.87	177.18	1415	SM	9.5
#232#	9	3	0	1.31	177.03	1412	SM	8.3
#232#	9	4	0	4.48	176.88	1410	SM, ER	8.3
#232#	9	5	0	7.66	176.73	1408	SM, ER	9.0
#232#	9	6	0	10.84	176.58	1406	SM, ER	9.1
#232#	9	7	0	14.02	176.44	1403	SM, ER	8.9
#232#	9	8	0	17.20	176.30	1401	SM, ER	6.5
#232#	9	9	0	20.38	176.16	1399	SM, ER	5.4
#232#	9	10	0	23.56	176.03	1396	SM, CE(1.4), ME, ER	5.6
#232#	9	11	0	26.74	175.90	1394		
#232#	9	12	0	29.93	175.78	1391	SM, ME, CE(1.8), ER	4.8
#232#	9	13	0	33.11	175.67	1389	SM, ME, CE(1.8), ER	4.5
#232#	9	14	0	36.29	175.57	1387	SM, ME, CE(1.8), ER	4.8
#232#	9	15	0	39.47	175.48	1384	SM, ME, CE(1.8), ER	5.6
#232#	9	16	0	42.65	175.41	1382		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KOI NAMUR FOR 20 AUGUST 1977 DAY 232

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
232	10	50	0	-19.83	149.49	1426		
232	10	51	0	-16.66	149.35	1424		
232	10	52	0	-13.50	149.21	1422	SM, ME	~4.0
232	10	53	0	-10.33	149.07	1420	SM, ME	4.4
232	10	54	0	-7.17	148.92	1418	SM, ER	~7.0
232	10	55	0	-4.00	148.77	1416	SM	> 7.0
232	10	56	0	-0.82	148.62	1414	SM	9.1
232	10	57	0	2.35	148.47	1412	SM	9.0
232	10	58	0	5.53	148.32	1409	SM, ER	8.8
232	10	59	0	8.71	148.17	1407	SM, ER	8.7
232	11	0	0	11.89	148.03	1405	SM	> 7.0
232	11	1	0	15.07	147.88	1402	SM	> 6.0
232	11	2	0	18.25	147.74	1400	SM	5.9
232	11	3	0	21.43	147.61	1398	SM	5.5
232	11	4	0	24.61	147.48	1395		
232	11	5	0	27.79	147.35	1393		
232	11	6	0	30.97	147.23	1391		
232	11	7	0	34.16	147.13	1388		
232	11	8	0	37.34	147.03	1386		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 20 AUGUST 1977 DAY 232

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
232	21	8	0	41.81	173.53	1366		
232	21	9	0	38.61	173.45	1368	SM, ME, ER	6.4
232	21	10	0	35.42	173.36	1369	SM, ME, ER	6.0
232	21	11	0	32.22	173.26	1371	SM, ME, CE(1.8), ER	5.9
232	21	12	0	29.02	173.14	1373	SM, ME, CE(1.5), ER	6.7
232	21	13	0	25.82	173.02	1374	SM, ME, ER	6.7
232	21	14	0	22.63	172.89	1376	SM, ME, CE(1.6), ER	7.0
232	21	15	0	19.43	172.76	1378	SM, ME, CE(1.6), ER	7.3
232	21	16	0	16.23	172.62	1380	SM, ER	7.5
232	21	17	0	13.03	172.48	1382	SM, ER	7.5
232	21	18	0	9.83	172.33	1384	SM, ER	7.0
232	21	19	0	6.64	172.19	1387	SM, ER	7.0
232	21	20	0	3.44	172.04	1389	SM, ER	6.9
232	21	21	0	0.25	171.89	1391	SM, ER	7.7
232	21	22	0	-2.94	171.74	1393	OFF	
232	21	23	0	-6.13	171.59	1395	SM, ME	9.9
232	21	24	0	-9.32	171.45	1398	SM, ME, ER	9.4
232	21	25	0	-12.50	171.30	1400	SM, ME, ER	8.3
232	21	26	0	-15.69	171.16	1402	SM, ME, ER	8.0
232	21	27	0	-18.87	171.02	1404	SM, ME, ER	7.8
232	21	28	0	-22.04	170.88	1406	SM, ME, ER	7.0
232	21	29	0	-25.21	170.75	1409	SM, ME, CE(1.8), ER	6.5

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 21 AUGUST 1977 DAY 233

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
233	9	33	0	-23.16	167.54	1426		
233	9	34	0	-20.00	167.40	1425		
233	9	35	0	-16.83	167.26	1423		
233	9	36	0	-13.67	167.12	1421		
233	9	37	0	-10.50	166.98	1419		
233	9	38	0	-7.33	166.83	1417	SM	9.4
233	9	39	0	-4.16	166.68	1415	SM	9.4
233	9	40	0	-0.99	166.53	1413	SM	8.8
233	9	41	0	2.19	166.38	1410	SM, ER	8.5
233	9	42	0	5.36	166.23	1408	SM, ER	8.5
233	9	43	0	8.54	166.08	1406	SM, ER	8.4
233	9	44	0	11.72	165.94	1403	SM	9.0
233	9	45	0	14.91	165.79	1401	SM	9.2
233	9	46	0	18.09	165.65	1399	SM	8.8
233	9	47	0	21.27	165.52	1396	SM	8.3
233	9	48	0	24.45	165.39	1394	SM, ME, CE(1.6), ER	>6.0
233	9	49	0	27.64	165.26	1392	SM, ME, ER	5.5
233	9	50	0	30.82	165.14	1389	SM, ME, ER	5.5
233	9	51	0	34.00	165.03	1387	SM, ME, CE(1.8), ER	5.5
233	9	52	0	37.19	164.94	1385	SM, ME, CE(1.9), ER	5.6
233	9	53	0	40.37	164.85	1382	SM, ME, ER	5.6
233	9	54	0	43.55	164.79	1380	SM, ME, ER	6.0

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 21 AUGUST 1977 DAY 233

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
233	21	46	0	40.90	162.90	1367		
233	21	47	0	37.70	162.82	1369		
233	21	48	0	34.51	162.73	1371		
233	21	49	0	31.31	162.62	1372	SM, ME	8.2
233	21	50	0	28.11	162.50	1374	SM, ME, ER	8.0
233	21	51	0	24.92	162.38	1376	SM, ME, ER	6.0
233	21	52	0	21.72	162.25	1378	SM, ER	6.2
233	21	53	0	18.52	162.12	1380	SM, ER	6.6
233	21	54	0	15.32	161.98	1382	SM, ER	7.0
233	21	55	0	12.13	161.83	1384	SM, ER	7.8
233	21	56	0	8.93	161.69	1386	SM, ER	8.2
233	21	57	0	5.74	161.54	1389	SM, ER	9.0
233	21	58	0	2.54	161.39	1391	SM, ER	9.4
233	21	59	0	-0.65	161.24	1393	SM, ER	9.6
233	22	0	0	-3.84	161.10	1395	SM, ER	9.3
233	22	1	0	-7.03	160.95	1398	SM, ME, CE(1.5), ER	8.0
233	22	2	0	-10.21	160.80	1400	SM, ME, ER	7.8
233	22	3	0	-13.40	160.66	1402	SM, ER	7.5
233	22	4	0	-16.58	160.51	1404	SM, ME, ER	7.0
233	22	5	0	-19.75	160.37	1406	SM, ME, ER	6.9
233	22	6	0	-22.93	160.24	1409	SM, ME, ER	7.1

ORBIT: 5104 ISIS 2 PASS SUMMARY FOR KOI NAMUR FOR 22 AUGUST 1977 DAY 234

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
234	8 18 0	-20.16	-174.69	1424		
234	8 19 0	-17.00	174.83	1422		
234	8 20 0	-13.84	-174.97	1420		
234	8 21 0	-10.67	-175.12	1418	SM	≥10.0
234	8 22 0	-7.50	-175.26	1416	WSP, STV, ET(5.0)	≥ 8.0
234	8 23 0	-4.33	-175.41	1414	SP, STV, ER	~ 7.5
234	8 24 0	-1.15	-175.56	1411	VSP, STV, ET(3.0), ER	≤ 5.0
234	8 25 0	2.03	-175.71	1409	VVSP, STV, ET(3.0), ER	≤ 5.0
234	8 26 0	5.20	-175.86	1407	VVSP, STV, ET(3.2), ER	≤ 5.0
234	8 27 0	8.38	-176.01	1405	VSP, STV, ET(3.3)	8.5
234	8 28 0	11.57	-176.15	1402	WSP, STV, ET(5.5)	≥ 9.5
234	8 29 0	14.75	-176.30	1400	SM	≥ 9.5
234	8 30 0	17.93	-176.44	1397	SM	≥ 9.5
234	8 31 0	21.11	-176.57	1395	SM, ER	8.5
234	8 32 0	24.30	-176.71	1393	SM, ER	5.8
234	8 33 0	27.48	-176.83	1390	SM, ER	5.0
234	8 34 0	30.67	-176.95	1388		
234	8 35 0	33.85	-177.06	1386		
234	8 36 0	37.04	-177.16	1383		
234	8 37 0	40.22	-177.24	1381		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KOI NAMUR FOR 22 AUGUST 1977 DAY 234

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#234#	10 11 0	-22.29	156.89	1425	SM, ME, ER	~4.5
#234#	10 12 0	-19.12	156.76	1423	OFF	
#234#	10 13 0	-15.96	156.62	1421	SM, ME, ER	4.5
#234#	10 14 0	-12.79	156.47	1419	SM, ME, ER	6.0
#234#	10 15 0	-9.63	156.33	1417	SM, ER	~7.0
#234#	10 16 0	-6.45	156.18	1415	SM, ER	9.7
#234#	10 17 0	-3.28	156.03	1413	SM	>10.0
#234#	10 18 0	-0.11	155.88	1411	SM, ER	9.5
#234#	10 19 0	3.07	155.73	1408	SM, ER	~9.5
#234#	10 20 0	6.25	155.58	1406	SM, ER	8.3
#234#	10 21 0	9.43	155.44	1404	SM, ER	9.3
#234#	10 22 0	12.61	155.29	1401	SM, ER	~11.0
#234#	10 23 0	15.80	155.15	1399	SM, ER	~11.0
#234#	10 24 0	18.98	155.01	1397	SM, ER	~9.5
#234#	10 25 0	22.16	154.87	1394	SM, ER	~8.0
#234#	10 26 0	25.35	154.74	1392		
#234#	10 27 0	28.53	154.62	1389		
#234#	10 28 0	31.72	154.51	1387		
#234#	10 29 0	34.90	154.40	1385		
#234#	10 30 0	38.09	154.31	1383		
#234#	10 31 0	41.27	154.23	1380		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 23 AUGUST 1977 DAY 235

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
235	8	55	0	-22.47	174.80	1424		
235	8	56	0	-19.31	174.66	1422	SM, ME, ER	5.0
235	8	57	0	-16.15	174.52	1420	SM, ME, ER	~6.0
235	8	58	0	-12.98	174.38	1418	SM, ME, ER	~7.0
235	8	59	0	-9.81	174.24	1416	SM, ME, ER	~8.0
235	9	0	0	-6.64	174.09	1414	SM, WSP(NP), ET(8.2), ME	> 9.5
235	9	1	0	-3.47	173.94	1412	SP, STV, ET(5.3), ME	~9.0
235	9	2	0	-0.29	173.79	1409	VSP, STV, ET(4.8), ME	~9.0
235	9	3	0	2.89	173.64	1407	VSP, STV. ET(4.5), ME	~9.0
235	9	4	0	6.07	173.49	1405	VSP, STV, ET(4.7), RSP	~9.0
235	9	5	0	9.25	173.34	1402	VSP, STV, ET(4.9), RSP	~9.0
235	9	6	0	12.43	173.20	1400	SP, STV, ET(5.3), RSP	9.4
235	9	7	0	15.62	173.06	1398	SM, ME	> 8.0
235	9	8	0	18.80	172.92	1395	SM, ME, ER	5.8
235	9	9	0	21.99	172.78	1393	SM, ME, ER	5.6
235	9	10	0	25.17	172.65	1391	SM, ME, ER	5.4
235	9	11	0	28.36	172.53	1388	SM, ME, ER	4.9
235	9	12	0	31.54	172.41	1386	SM, ME, ER	~5.0
235	9	13	0	34.73	172.31	1384		
235	9	14	0	37.91	172.21	1381		
235	9	15	0	41.10	172.13	1379		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 23 AUGUST 1977 DAY 235

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
235	10 50 0	-18.27	146.11	1421		
235	10 51 0	-15.11	145.97	1419		
235	10 52 0	-11.94	145.83	1417	SM, ER	5.0
235	10 53 0	-8.77	145.68	1415	SM, ER	~5.0
235	10 54 0	-5.60	145.53	1413	SM, ME, ER	5.9
235	10 55 0	-2.42	145.38	1411	SM, ME, ER	6.5
235	10 56 0	0.75	145.23	1409	SM, ME, ER	7.5
235	10 57 0	3.93	145.08	1406	SM, ME	9.4
235	10 58 0	7.11	144.93	1404	SM, ME	>9.0
235	10 59 0	10.30	144.79	1402	SM, ME	>8.5
235	11 0 0	13.48	144.64	1399	SM, ME, ER	~8.0
235	11 1 0	16.66	144.50	1397	SM, ME, ER	6.5
235	11 2 0	19.85	144.36	1394	SM, ER	5.8
235	11 3 0	23.03	144.23	1392	SM, ME, ER	5.8
235	11 4 0	26.22	144.10	1390	SM, ER	5.7
235	11 5 0	29.41	143.98	1387		
235	11 6 0	32.59	143.87	1385		
235	11 7 0	35.78	143.77	1383		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROT NAMUR FOR 23 AUGUST 1977 DAY 235

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
235	21	7	0	43.35	170.25	1368		
235	21	8	0	40.15	170.18	1369		
235	21	9	0	36.96	170.10	1371	SM, ME(<2.2), ER	8.0
235	21	10	0	33.77	170.00	1373	SM, ME, ER	7.5
235	21	11	0	30.57	169.89	1375	SM, ME(<2.5), ER	8.1
235	21	12	0	27.38	169.77	1377	SM, ME(<2), CE(1.6), ER	8.7
235	21	13	0	24.18	169.65	1379	SM	>10.0
235	21	14	0	20.98	169.52	1381	SM, ME(<2)	10.0
235	21	15	0	17.79	169.38	1383	SM, ME(<2), ER	9.0
235	21	16	0	14.59	169.24	1385	SM, ME(<2), ER	7.1
235	21	17	0	11.40	169.10	1387	SM, ME(<2), ER	7.7
235	21	18	0	8.21	168.95	1390	SM, SP(<2), ER	8.7
235	21	19	0	5.01	168.80	1392	SM, SP(<2), ER	9.2
235	21	20	0	1.82	168.65	1394	SM, SP(<2), ER	9.3
235	21	21	0	-1.37	168.50	1396	SM, SP(<2), ER	9.2
235	21	22	0	-4.55	168.36	1399	OFF	
235	21	23	0	-7.74	168.21	1401	SM, WSP(<2), ER	8.2
235	21	24	0	-10.92	168.06	1403	SM, ME(<2), ER	8.0
235	21	25	0	14.10	167.92	1405	SM, ME(<2), CE(1.8), ER	9.2
235	21	26	0	-17.28	167.78	1408	SM, ME(<2), CE(1.8), ER	9.4
235	21	27	0	-20.45	167.64	1410	SM, ME, CE(1.6), ER	8.9
235	21	28	0	-23.62	167.50	1412	SM, ME, ER	8.9

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KOI NAMUR FOR 24 AUGUST 1977 DAY 236

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#236#	9 33 0	-21.62	164.15	1422	SM, ME, ER	~4.5
#236#	9 34 0	-18.45	164.02	1420	SM, ME, WSP(NP), ER	~5.0
#236#	9 35 0	-15.29	163.88	1418	SM, ME, SP(NP), ER	~5.5
#236#	9 36 0	-12.12	163.73	1416	SM, ME, CE(1.5)	~6.0
#236#	9 37 0	-8.95	163.59	1414	SM, ME	≥6.0
#236#	9 38 0	-5.77	163.44	1412	SM, ME, ET(5)	≥7.0
#236#	9 39 0	-2.60	163.29	1410	SP(NP), ME, ET(5)	≥7.0
#236#	9 40 0	0.58	163.14	1407	VSP, ME, ET(?)	≥6.0
#236#	9 41 0	3.76	162.99	1405	VVSP, ET(2)	≥6.0
#236#	9 42 0	6.94	162.84	1403	VVSP, ET(1.9), RSP, ER	~9.0
#236#	9 43 0	10.12	162.70	1400	VVSP, STV, ET(2)	~9.0
#236#	9 44 0	13.31	162.55	1398	VVSP, STV, ET(2), ME, ER	~9.0
#236#	9 45 0	16.49	162.41	1396	VSP, STV, ET(3), ME	≥6.0
#236#	9 46 0	19.68	162.27	1393	SP,STV,ET(4.5),ME,CE(1.4),ER	~7.0
#236#	9 47 0	22.87	162.14	1391	SM, ME, CE(1.5)	~6.0
#236#	9 48 0	26.05	162.01	1388	SM, ME, ER	6.0
#236#	9 49 0	29.24	161.89	1386	SM, ME, CE(1.8), ER	6.0
#236#	9 50 0	32.43	161.78	1384	SM, ME	6.0
#236#	9 51 0	35.61	161.67	1382		
#236#	9 52 0	38.80	161.58	1380		
#236#	9 53 0	41.99	161.51	1377		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 25 AUGUST 1977 DAY 237

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
237	8	17	0	-21.80	-177.94	1421		
237	8	18	0	-18.63	-178.07	1419		
237	8	19	0	-15.47	-178.21	1417	SM	≥10.0
237	8	20	0	-12.30	-178.36	1415	SM, WSP(NP)	≥10.0
237	8	21	0	-9.12	-178.50	1413	SP, STV, ET(3.5), RSP	~9.5
237	8	22	0	-5.95	-178.65	1410	VVSP, STV, ET(3.0), RSP	~9.0
237	8	23	0	-2.77	-178.80	1408	VVSP, STV, ET(2.6)	≥7.0
237	8	24	0	0.41	-178.95	1406	VVSP, STV, ET(2.4), ER	6.9
237	8	25	0	3.59	-179.10	1404	VVSP, STV, ET(2.7), RSP, ER	7.0
237	8	26	0	6.77	-179.25	1401	VVSP, STV, ET(2.2)	≥5.0
237	8	27	0	9.96	-179.39	1399	VVSP, STV, ET(2.0)	≥5.0
237	8	28	0	13.14	-179.54	1397	VVSP, STV, ET(2.5)	≥6.0
237	8	29	0	16.33	-179.68	1394	SP, STV, ET(3.5)	9.0
237	8	30	0	19.52	-179.82	1392	SM, WSP(NP), ET(6.5)	≥9.0
237	8	31	0	22.70	-179.95	1390	SM, ME, ER	5.8
237	8	32	0	25.89	179.92	1387	SM, ME, ER	5.4
237	8	33	0	29.08	179.80	1385	SM, ME, CE(1.8), ER	5.0
237	8	34	0	32.27	179.68	1383	SM, ME, ER	4.7
237	8	35	0	35.45	179.58	1381	SM, ME, ER	4.2
237	8	36	0	38.64	179.49	1378	SM, ME, ER	4.2
237	8	37	0	41.83	179.41	1376	SM, ME, ER	4.2

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 25 AUGUST 1977 DAY 237

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#237#	10	11	0	-20.76	153.51	1420		
#237#	10	12	0	-17.59	153.37	1418		
#237#	10	13	0	-14.42	153.23	1416	SM, ME(<1.6), ER	6.0
#237#	10	14	0	-11.25	153.09	1414	SM, ER	6.3
#237#	10	15	0	-8.08	152.94	1412	SM, ER	≥ 7.0
#237#	10	16	0	-4.90	152.79	1410	SM, WSP(NP), ET(8.3)	≥ 9.0
#237#	10	17	0	-1.73	152.64	1407	SM, WSP, ET(4.5)	≥10.0
#237#	10	18	0	1.45	152.49	1405	SP, STV, ET(3.2)	≥ 9.0
#237#	10	19	0	4.64	152.35	1403	VSP, STV, ET(3.1)	≥ 9.0
#237#	10	20	0	7.82	152.20	1400	VSP, STV, ET(3.0), RSP	~ 9.0
#237#	10	21	0	11.00	152.05	1398	SM, RSP, ET(3.2)	≥ 9.5
#237#	10	22	0	14.19	151.91	1396	SM, RSP, ET(4.0)	≥10.0
#237#	10	23	0	17.38	151.77	1393	SM	≥ 9.5
#237#	10	24	0	20.56	151.63	1391	SM, ER	9.0
#237#	10	25	0	23.75	151.50	1389	SM, ER	6.5
#237#	10	26	0	26.94	151.37	1386	SM, ER	6.3
#237#	10	27	0	30.13	151.25	1384	SM, ER	6.0
#237#	10	28	0	33.32	151.14	1382		
#237#	10	29	0	36.50	151.04	1380		
#237#	10	30	0	39.69	150.95	1378		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 25 AUGUST 1977 DAY 237

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
237	20	29	0	42.60	177.53	1370		
237	20	30	0	39.41	177.46	1372	SM, ME, ER	7.0
237	20	31	0	36.22	177.37	1374	SM, ME, ER	7.0
237	20	32	0	33.03	177.27	1376	SM, ME, ER	7.3
237	20	33	0	29.83	177.16	1378	SM, ME, ER	6.9
237	20	34	0	26.64	177.04	1380	SM, ME(<2), ER	6.6
237	20	35	0	23.44	176.91	1382	SM, ER	6.3
237	20	36	0	20.25	176.78	1384	SM, ER	6.9
237	20	37	0	17.06	176.64	1386	SM, ER	7.2
237	20	38	0	13.86	176.50	1388	SM, ER	7.5
237	20	39	0	10.67	176.36	1391	SM, ER	7.8
237	20	40	0	7.48	176.21	1393	SM, ER	7.5
237	20	41	0	4.29	176.06	1395	SM, ER	7.8
237	20	42	0	1.10	175.92	1398	SM, ER	8.1
237	20	43	0	-2.08	175.77	1400	SM, ER	8.2
237	20	44	0	-5.27	175.62	1402	SM, ER	8.4
237	20	45	0	-8.45	175.47	1404	SM, ER	8.5
237	20	46	0	-11.63	175.32	1407	SM, ME, ER	8.7
237	20	47	0	-14.80	175.18	1409	SM, ME, CE(1.6), ER	9.0
237	20	48	0	-17.98	175.04	1411	SM, ME, ER	8.9
237	20	49	0	-21.15	174.90	1413	SM, ME, ER	8.1
237	20	50	0	-24.32	174.77	1415	SM, ME, ER	6.9

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 26 AUGUST 1977 DAY 238

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
238	8	54	0	-24.09	171.55	1421		
238	8	55	0	-20.93	171.42	1419	SM, ME, ER	4.5
238	8	56	0	-17.76	171.28	1417	SM, ME, ER	6.8
238	8	57	0	-14.60	171.14	1415	SM	≥ 9.5
238	8	58	0	-11.42	171.00	1413	SM, WSP(NP)	> 9.0
238	8	59	0	-8.25	170.85	1411	SM, RSP	> 9.0
238	9	0	0	-5.07	170.70	1408	SP, RSP, ET(5.0)	≥ 9.0
238	9	1	0	-1.89	170.55	1406	VSP, STV, ET(3.5)	9.2
238	9	2	0	1.29	170.40	1404	VSP, STV, ET(3.2)	> 7.0
238	9	3	0	4.47	170.25	1401	VSP, STV, ET(3.1), RSP	≥ 8.0
238	9	4	0	7.65	170.11	1399	VSP, STV, ET(3.3), RSP, ER	~ 8.0
238	9	5	0	10.84	169.96	1397	SM, RSP	~ 8.5
238	9	6	0	14.03	169.82	1394	SP, ET(8.5), RSP	9.0
238	9	7	0	17.22	169.67	1392	SM	9.0
238	9	8	0	20.40	169.54	1390	SM	9.0
238	9	9	0	23.59	169.41	1387	SM, ME	~ 8.0
238	9	10	0	26.78	169.28	1385	SM, ME, ER	~ 7.0
238	9	11	0	29.97	169.16	1383	SM, ME, ER	5.2
238	9	12	0	33.16	169.05	1381	SM, ME, ER	5.0
238	9	13	0	36.35	168.95	1379	SM, ME, ER	4.8
238	9	14	0	39.54	168.86	1377	SM, ME, ER	4.7
238	9	15	0	42.72	168.79	1375	SM, ME, ER	5.1
238	10	51	0	-13.55	142.59	1414		
238	10	52	0	-10.38	142.44	1412		
238	10	53	0	-7.20	142.29	1410		
238	10	54	0	-4.03	142.14	1407		
238	10	55	0	-0.85	142.00	1405	SM	9.0
238	10	56	0	2.33	141.85	1403	SM	8.7
238	10	57	0	5.52	141.70	1401	SM, ER	8.0
238	10	58	0	8.70	141.55	1398	SM, ER	8.0
238	10	59	0	11.89	141.40	1396	SM	9.0
238	11	0	0	15.08	141.26	1394	SM	9.5
238	11	1	0	18.26	141.12	1391	SM	~ 9.0
238	11	2	0	21.45	140.99	1389	SM	~ 9.5
238	11	3	0	24.64	140.85	1387	SM, ER	7.2
238	11	4	0	27.83	140.73	1384	SM, ER	5.7
238	11	5	0	31.02	140.61	1382	SM	6.5

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KOI NAMUR FOR 26 AUGUST 1977 DAY 238

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT NM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
238	21	7	0	41.70	166.91	1372		
238	21	8	0	38.51	166.83	1373		
238	21	9	0	35.32	166.74	1375	SM, ER	6.2
238	21	10	0	32.13	166.64	1377	SM, ER	6.8
238	21	11	0	28.93	166.52	1379	SM, ER	7.0
238	21	12	0	25.74	166.40	1381	SM, ER	6.8
238	21	13	0	22.55	166.27	1384	SM, ER	7.5
238	21	14	0	19.36	166.14	1386	SM, ER	7.5
238	21	15	0	16.16	166.00	1388	SM, ER	7.5
238	21	16	0	12.97	165.86	1390	SM, ER	8.0
238	21	17	0	9.78	165.71	1393	SM, WSP, ER	8.5
238	21	18	0	6.59	165.57	1395	SM, VSP, ER	9.0
238	21	19	0	3.40	165.42	1397	SM, VSP, ER	9.5
238	21	20	0	0.22	165.27	1400	SM, SP, ER	9.6
238	21	21	0	-2.97	165.12	1402	SM, WSP(NP), ER	9.1
238	21	22	0	-6.15	164.97	1404	SM, ER	9.0
238	21	23	0	-9.33	164.82	1407	SM, ER	8.5
238	21	24	0	-12.51	164.68	1409	SM, ER	8.2
238	21	25	0	-15.68	164.53	1411	SM, ME(<2), ER	8.1
238	21	26	0	-18.85	164.39	1413	SM, ME(<2), ER	7.8
238	21	27	0	-22.02	164.26	1415	SM, ME(<2), ER	6.5
238	21	28	0	-25.19	164.13	1417		

OBJECT: 5104 1915 2 PASS SUMMARY FOR ROT NAMUR FOR 27 AUGUST 1977 DAY 239

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
239	7 40 0	-17.93	-170.81	1416		
239	7 41 0	-14.76	-170.95	1414		
239	7 42 0	-11.59	-171.09	1412	SM, ME	≥ 7.0
239	7 43 0	-8.42	-171.24	1409	SM, ME, WSP(NP)	≥ 9.0
239	7 44 0	-5.24	-171.39	1407	SM, ME, WSP(NP)	≥ 9.5
239	7 45 0	-2.06	-171.54	1405	SP, ME, ET(5.0), RSP	9.3
239	7 46 0	1.12	-171.69	1403	SP, ME, ET(5.0), RSP, ER	9.5
239	7 47 0	4.31	-171.84	1400	SP, ET(6.0), RSP, ER	9.4
239	7 48 0	7.49	-171.98	1398	SM, WSP, RSP, ME	≥ 8.5
239	7 49 0	10.68	-172.13	1395	SM, WSP, ER	7.0
239	7 50 0	13.87	-172.27	1393	SM, ME, ER	5.2
239	7 51 0	17.06	-172.42	1391	SM, ER	5.2
239	7 52 0	20.25	-172.55	1389	SM, ME, ER	4.9
239	7 53 0	23.44	-172.69	1386	SM, ME, ER	4.8
239	7 54 0	26.63	-172.81	1384	SM, ME, ER	4.5
239	7 55 0	29.82	-172.93	1382		
239	7 56 0	33.01	-173.04	1380		
239	7 57 0	36.20	-173.14	1378		
239	7 58 0	39.39	-173.23	1375		

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239	9 34 0	-16.89	160.64	1415	SM, ME, ER	4.5
239	9 35 0	-13.72	160.49	1413	SM, ME, CE(1.6), ER	4.7
239	9 36 0	-10.55	160.35	1411	SM, ER	~ 4.8
239	9 37 0	-7.37	160.20	1408	SM, ER	> 5.0
239	9 38 0	-4.19	160.05	1406	SM, ER	9.2
239	9 39 0	-1.01	159.91	1404	SM	>10.0
239	9 40 0	2.17	159.76	1402	SM, ER	9.5
239	9 41 0	5.36	159.61	1399	SM	9.6
239	9 42 0	8.54	159.46	1397	SM	9.4
239	9 43 0	11.73	159.31	1395	SM	>10.0
239	9 44 0	14.92	159.17	1392	SM, ME	>10.0
239	9 45 0	18.11	159.03	1390	SM, ER	~ 7.5
239	9 46 0	21.30	158.89	1388	SM, ER	~ 6.5
239	9 47 0	24.49	158.76	1385	SM, ME	5.5
239	9 48 0	27.68	158.64	1383	SM, ME, CE(1.6), ER	5.5
239	9 49 0	30.87	158.52	1381	SM, ME, ER	5.5
239	9 50 0	34.06	158.41	1379	SM, ME, CE(1.6), ER	5.5
239	9 51 0	37.25	158.32	1377	SM, ME, CE(1.5), ER	5.5
239	9 52 0	40.44	158.23	1375	SM, ME, ER	5.6

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ORBIT: 5104 ISIS 2 PASS SUMMARY FOR NOT GRADUE FOR 28 AUGUST 1977 DAY 240

PASS	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
240	8 16 0	24.39	178.82	1418		
240	8 17 0	20.24	178.68	1416		
240	8 18 0	-17.06	178.55	1414		
240	8 19 0	-13.89	178.40	1412	SM, ER	11.0
240	8 20 0	-10.71	178.26	1409	SM	≥11.0
240	8 21 0	-7.53	178.11	1407	SM	≥ 6.0
240	8 22 0	-4.35	177.96	1405	WSP, STV, ET(4.3)	≥ 6.0
240	8 23 0	-1.17	177.82	1403	VSP, STV, ET(3.5)	~ 7.5
240	8 24 0	2.01	177.67	1400	VSP, STV, ET(3.5), ER	7.4
240	8 25 0	5.20	177.52	1398	VSP, STV, ET(3.7), ER	7.5
240	8 26 0	8.38	177.37	1396	VSP, STV, ET(4.8)	9.0
240	8 27 0	11.57	177.22	1393	SM, RSP	≥9.0
240	8 28 0	14.76	177.08	1391	SM	≥7.0
240	8 29 0	17.95	176.94	1389	SM, ER	~8.0
240	8 30 0	21.14	176.80	1386	SM, ER	~7.5
240	8 31 0	24.34	176.67	1384	SM, ER	6.2
240	8 32 0	27.53	176.55	1382		
240	8 33 0	30.72	176.43	1380		
240	8 34 0	33.91	176.32	1378		
240	8 35 0	37.10	176.23	1376		
240	8 36 0	40.29	176.14	1374		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 28 AUGUST 1972 DAY 240

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
240	10	11	0	-19.18	150.13	1415		
240	10	12	0	-16.01	149.99	1413		
240	10	13	0	-12.84	149.85	1411		
240	10	14	0	-9.67	149.70	1409	SM, CE(1.6)	>5.0
240	10	15	0	-6.49	149.56	1406	SM	>6.0
240	10	16	0	-3.31	149.41	1404	SM	~9.5
240	10	17	0	-0.12	149.26	1402	SM	8.7
240	10	18	0	3.06	149.11	1399	SM, ER	8.2
240	10	19	0	6.25	148.96	1397	SM, ER	7.8
240	10	20	0	9.43	148.81	1395	SM	>8.0
240	10	21	0	12.62	148.67	1392	SM	>6.0
240	10	22	0	15.81	148.53	1390	SM	>8.0
240	10	23	0	19.00	148.39	1388	SM	>7.0
240	10	24	0	22.20	148.25	1386	SM, ER	>6.0
240	10	25	0	25.39	148.12	1383	SM, ER	~6.5
240	10	26	0	28.58	148.00	1381	SM, ER	~4.5
240	10	27	0	31.77	147.89	1379		
240	10	28	0	34.96	147.78	1377		
240	10	29	0	38.15	147.69	1375		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KOI NAMUR FOR 28 AUGUST 1977 DAY 240

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
240	20 29 0	40.94	174.19	1374		
240	20 30 0	37.75	174.11	1376		
240	20 31 0	34.56	174.01	1378	SM	6.8
240	20 32 0	31.37	173.91	1380	SM, ER	7.0
240	20 33 0	28.18	173.79	1382	SM, ER	7.5
240	20 34 0	24.99	173.67	1385	SM, ER	7.5
240	20 35 0	21.80	173.54	1387	SM, ER	7.0
240	20 36 0	18.61	173.40	1389	SM, ER	6.9
240	20 37 0	15.42	173.26	1392	SM, ER	7.0
240	20 38 0	12.23	173.12	1394	SM, ER	7.0
240	20 39 0	9.04	172.98	1396	SM, ER	7.3
240	20 40 0	5.86	172.83	1399	SM, ER	8.0
240	20 41 0	2.67	172.68	1401	SM, ER	8.0
240	20 42 0	-0.51	172.53	1403	SM	> 5.0
240	20 43 0	-3.69	172.38	1405	SM	≈ 8.7
240	20 44 0	-6.87	172.23	1408	SM, ER	8.5
240	20 45 0	-10.05	172.09	1410	SM, ER	8.8
240	20 46 0	-13.22	171.94	1412	SM	> 5.0
240	20 47 0	-16.39	171.80	1414	SM, ER	8.5
240	20 48 0	-19.56	171.66	1416	SM, ER	8.2
240	20 49 0	-22.73	171.52	1418	SM, ER	7.4

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR RO1 NAMUR FOR 29 AUGUST 1977 DAY 241

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
241	8	53	0	-25.68	168.30	1418		
241	8	54	0	-22.52	168.17	1416	SM, ME, ER	4.2
241	8	55	0	-19.35	168.04	1414	SM, ME, ER	4.5
241	8	56	0	-16.18	167.90	1412	SM, ME, ER	4.5
241	8	57	0	-13.00	167.76	1409	SM, ME, ER	4.8
241	8	58	0	-9.83	167.61	1407	SM, ME	5.5
241	8	59	0	-6.65	167.47	1405	SM, ME, ER	8.2
241	9	0	0	-3.46	167.32	1403	SM, ME, ER	8.6
241	9	1	0	-0.28	167.17	1400	SM, ER	8.5
241	9	2	0	2.90	167.02	1398	SM	> 6.0
241	9	3	0	6.09	166.87	1396	SM, ER	9.0
241	9	4	0	9.28	166.72	1393	SM, ER	9.0
241	9	5	0	12.47	166.58	1391	SM	> 6.0
241	9	6	0	15.66	166.44	1389	SM	> 6.0
241	9	7	0	18.85	166.30	1387	SM, ER	5.8
241	9	8	0	22.05	166.16	1384	SM, ME, ER	5.5
241	9	9	0	25.24	166.03	1382	SM, ME, ER	≥ 5.0
241	9	10	0	28.43	165.91	1380	SM, ME	≥ 6.0
241	9	11	0	31.62	165.79	1378	SM, ME, ER	~ 7.0
241	9	12	0	34.82	165.69	1376	SM, ME, ER	6.4
241	9	13	0	38.01	165.60	1374		
241	9	14	0	41.20	165.52	1372		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 29 AUGUST 1977 DAY 241

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
241	21	6	0	43.22	163.63	1374		
241	21	7	0	40.03	163.56	1376		
241	21	8	0	36.85	163.48	1378	SM, ME, CE(1.6), ER	5.8
241	21	9	0	33.66	163.38	1380	SM, ER	6.1
241	21	10	0	30.47	163.27	1382	SM, ER	7.0
241	21	11	0	27.28	163.15	1384	SM, ER	7.8
241	21	12	0	24.09	163.03	1387	SM, ER	8.4
241	21	13	0	20.90	162.90	1389	SM, ER	8.6
241	21	14	0	17.71	162.76	1391	SM, ER	8.3
241	21	15	0	14.52	162.62	1394	SM, ER	8.2
241	21	16	0	11.34	162.48	1396	SM, ER	> 5.0
241	21	17	0	8.15	162.33	1398	SM	> 6.0
241	21	18	0	4.96	162.18	1401	SM	> 7.0
241	21	19	0	1.78	162.03	1403	SM, ER	8.3
241	21	20	0	-1.40	161.88	1405	SM, ER	8.1
241	21	21	0	-4.58	161.73	1408	SM, ER	7.5
241	21	22	0	-7.76	161.59	1410	SM, ER	7.1
241	21	23	0	-10.93	161.44	1412	SM, ME(<1.8), ER	7.2
241	21	24	0	-14.11	161.29	1414	SM, ME(<2), ER	~ 7.5
241	21	25	0	-17.28	161.15	1416	SM, ME(<2)	~ 7.5
241	21	26	0	-20.44	161.02	1418	SM, ER	8.0
241	21	27	0	-23.61	160.88	1420		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR RO1 NAMUR FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
#242#	7 39 0	-19.51	-174.05	1413		
#242#	7 40 0	-16.33	-174.19	1410		
#242#	7 41 0	-13.16	-174.33	1408	SM	>10.0
#242#	7 42 0	-9.98	-174.48	1406	SP, STV, ET(5.0)	~ 9.5
#242#	7 43 0	-6.80	-174.62	1404	SP, STV, ET(3.0), RSP	≥ 7.0
#242#	7 44 0	-3.62	-174.77	1401	VVSP, STV, ET(2.5), RSP	≥ 6.0
#242#	7 45 0	-0.43	-174.92	1399	VVSP, STV, ET(2.4), RSP	≥ 5.0
#242#	7 46 0	2.75	-175.07	1397	VVSP, STV, ET(1.8), RSP	≥ 5.0
#242#	7 47 0	5.94	-175.22	1394	VSP, STV, ET(2.3), RSP	~ 8.9
#242#	7 48 0	9.13	-175.37	1392	VVSP, STV, ET(2.5), RSP	≥ 5.0
#242#	7 49 0	12.32	-175.51	1390	SP, STV, ET(3), RSP, ER	~ 9.0
#242#	7 50 0	15.51	-175.66	1388	SP, STV, ET(4.5), ME, ER	> 6.0
#242#	7 51 0	18.71	-175.79	1385	SM, ME, ER	5.8
#242#	7 52 0	21.90	-175.93	1383	SM, ME, ER	4.8
#242#	7 53 0	25.09	-176.06	1381	SM, ME, ER	4.2
#242#	7 54 0	28.29	-176.18	1379	SM, ME, ER	4.2
#242#	7 55 0	31.48	-176.30	1377	SM, ME, ER	3.7
#242#	7 56 0	34.67	-176.40	1375	SM, ME, ER	4.0
#242#	7 57 0	37.87	-176.50	1373		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
242	9 32 0	-21.63	157.53	1414		
242	9 33 0	-18.46	157.40	1412	SM, ME, ER	~4.5
242	9 34 0	-15.29	157.26	1410	SM, ME, ER	4.3
242	9 35 0	-12.11	157.11	1407	SM, ME, ER	4.8
242	9 36 0	-8.94	156.97	1405	SM, ME, ER	4.7
242	9 37 0	-5.75	156.82	1403	SM, ME, ER	5.2
242	9 38 0	-2.57	156.67	1401	SM, ME, CE(1.7), ER	5.5
242	9 39 0	0.62	156.52	1398	SM, ME, ER	6.5
242	9 40 0	3.80	156.37	1396	SM, ME, ER	7.0
242	9 41 0	6.99	156.22	1394	SM, ME	6.8
242	9 42 0	10.18	156.08	1391	SM, ME	6.2
242	9 43 0	13.37	155.93	1389	SM, ME, ER	5.9
242	9 44 0	16.57	155.79	1387	SM, ME, ER	5.2
242	9 45 0	19.76	155.65	1385	SM, ME, ER	6.0
242	9 46 0	22.95	155.52	1382	SM, ME	~6.0
242	9 47 0	26.15	155.39	1380	SM, ME, ER	~6.0
242	9 48 0	29.34	155.27	1378	SM, ME, ER	6.0
242	9 49 0	32.53	155.16	1376	SM, ER	6.4
242	9 50 0	35.73	155.06	1374	SM	6.0
242	9 51 0	38.92	154.97	1372	SM, ER	5.7
242	9 52 0	42.11	154.89	1370		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KOI NAMUR FOR 31 AUGUST 1977 DAY 243

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
243	8 16 0	-21.79	175.44	1413		
243	8 17 0	-18.62	175.31	1410		
243	8 18 0	-15.44	175.17	1408	SM, ER	6.3
243	8 19 0	-12.27	175.02	1406	SM	> 9.0
243	8 20 0	-9.09	174.88	1404	SM	> 7.0
243	8 21 0	-5.91	174.73	1402	SM	> 6.0
243	8 22 0	-2.72	174.58	1399	SP, STV, ET(4.3)	8.2
243	8 23 0	0.47	174.43	1397	SP, STV, ET(3.4), RSP, ER	7.6
243	8 24 0	3.65	174.28	1395	VSP, STV, ET(3.0), RSP, ER	7.7
243	8 25 0	6.84	174.13	1392	SM, RSP, ET(3.5), ER	8.2
243	8 26 0	10.04	173.99	1390	SM, RSP, ET(4.8)	9.0
243	8 27 0	13.23	173.84	1388	SM, RSP	~ 9.0
243	8 28 0	16.42	173.70	1386	SM	> 7.0
243	8 29 0	19.62	173.56	1383	SM	~ 6.0
243	8 30 0	22.81	173.43	1381	SM	5.5
243	8 31 0	26.01	173.30	1379	SM, ME, ER	5.0
243	8 32 0	29.20	173.18	1377	SM, ME, ER	4.2
243	8 33 0	32.39	173.07	1375	SM, ME, ER	4.5
243	8 34 0	35.59	172.96	1373	SM, ME, ER	5.3
243	8 35 0	38.78	172.87	1371		
243	8 36 0	41.97	172.80	1370		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 31 AUGUST 1977 DAY 243

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ
243	10 13 0	-11.22	146.47	1405	SM, ME	5.0
243	10 14 0	-8.04	146.32	1403	SM, ME, CE(1.4)	5.2
243	10 15 0	-4.86	146.17	1401	SM, ER	6.2
243	10 16 0	-1.67	146.02	1398	SM, ER	> 6.0
243	10 17 0	1.52	145.87	1396	SM, ER	9.2
243	10 18 0	4.71	145.72	1394	SM, ER	9.3
243	10 19 0	7.90	145.58	1391	SM, ER	> 9.0
243	10 20 0	11.09	145.43	1389	SM	> 6.0
243	10 21 0	14.28	145.29	1387	SM, CE(>1.4)	> 6.0
243	10 22 0	17.48	145.15	1385	SM, ME	≥ 4.0
243	10 23 0	20.67	145.01	1383	SM, ME	4.5
243	10 24 0	23.86	144.88	1380	SM, ME	3.8
243	10 25 0	27.06	144.75	1378	SM, ME, ER	3.6
243	10 26 0	30.25	144.63	1376		
243	10 27 0	33.45	144.52	1374		
243	10 28 0	36.64	144.43	1372		
243	20 28 0	42.45	170.92	1377		
243	20 29 0	39.26	170.84	1379		
243	20 30 0	36.08	170.76	1381	SM, ER	7.0
243	20 31 0	32.89	170.66	1383	SM, ER	7.0
243	20 32 0	29.70	170.54	1385	SM, ME(<2), ER	6.9
243	20 33 0	26.52	170.42	1388	SM, ME(<1.8), ER	7.1
243	20 34 0	23.33	170.30	1390	SM, ER	7.6
243	20 35 0	20.14	170.16	1392	SM, ER	> 7.0
243	20 36 0	16.96	170.03	1395	SM, ME(<1.7), ER	7.8
243	20 37 0	13.77	169.88	1397	SM, SP(<2), ER	7.5
243	20 38 0	10.59	169.74	1400	SM, ER	7.4
243	20 39 0	7.40	169.59	1402	SM, SP(<2), ER	8.0
243	20 40 0	4.22	169.44	1404	SM, SP(<1.8), ER	8.0
243	20 41 0	1.04	169.30	1407	SM, SP(<1.7), ER	8.4
243	20 42 0	-2.14	169.15	1409	SM, ER	8.1
243	20 43 0	-5.32	169.00	1411	SM, SP(<1.8), ER	8.0
243	20 44 0	-8.49	168.85	1413	SM, ER	7.5
243	20 45 0	-11.66	168.70	1415	SM, ME(<1.7), ER	7.0
243	20 46 0	-14.83	168.56	1417	SM, ME(<2), ER	6.6
243	20 47 0	-18.00	168.41	1419	SM, ME(<2), ER	6.6
243	20 48 0	-21.16	168.26	1421		
243	20 49 0	-24.32	168.15	1423		

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 21 JULY 1978 DAY 202

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM
202	23 36 0	29.31	159.34	723			21.31	162.91	300
202	23 37 0	25.42	159.23	763			17.77	163.36	300
202	23 38 0	21.57	159.10	806	SM, ER	10.0	14.90	163.76	300
202	23 39 0	17.77	158.97	853	SM, ER	10.1	12.64	164.07	300
202	23 40 0	14.02	158.83	904	SM, ER	10.3	10.83	164.29	300
202	23 41 0	10.32	158.68	958	SM, ER	10.6	9.33	164.44	300
202	23 42 0	6.68	158.53	1015	SM, ER	11.3	8.02	164.52	300
202	23 43 0	3.09	158.38	1075	SM	>10.0	6.82	164.55	300
202	23 44 0	-0.44	158.23	1138	SM	13.7	5.66	164.54	300
202	23 45 0	-3.91	158.07	1202	SM, ER	~11.0	4.49	164.49	300
202	23 46 0	-7.32	157.91	1269	SM	14.0	3.26	164.39	300
202	23 47 0	-10.66	157.76	1337	SM	>11.0	1.95	164.27	300
202	23 48 0	-13.95	157.60	1407			0.50	164.11	300
202	23 49 0	-17.18	157.44	1478			-1.09	163.93	300
202	23 50 0	-20.35	157.29	1549			-2.84	163.72	300
202	23 51 0	-23.45	157.14	1622			-4.78	163.49	300
202	23 52 0	-26.50	156.99	1695			-6.88	163.26	300

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 22 JULY 1978 DAY 203

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM
203	9 19 0	-33.08	-166.99	3303			-6.00	175.66	300
203	9 20 0	-30.97	-167.16	3268			-4.46	175.27	300
203	9 21 0	-28.85	-167.34	3231			-3.05	174.89	300
203	9 22 0	-26.71	-167.51	3192			-1.77	174.54	300
203	9 23 0	-24.55	-167.69	3150			-0.60	174.21	300
203	9 24 0	-22.37	-167.87	3106			0.45	173.91	300
203	9 25 0	-20.17	-168.05	3060			1.40	173.63	300
203	9 26 0	-17.95	-168.23	3011			2.26	173.39	300
203	9 27 0	-15.70	-168.42	2961	SM	8.1	3.05	173.17	300
203	9 28 0	-13.43	-168.60	2908	M		3.76	172.97	300
203	9 29 0	-11.13	-168.79	2854	M		4.42	172.80	300
203	9 30 0	-8.80	-168.97	2797	SM, CE(1.3)	>6.0	5.03	172.66	300
203	9 31 0	-6.44	-169.16	2739	SM, RSP(>3.5)	>6.0	5.61	172.54	300
203	9 32 0	-4.05	-169.34	2678	SM, RSP(>3.5)	>5.0	6.15	172.44	300
203	9 33 0	-1.63	-169.53	2616	WSP, STV	~7.0	6.68	172.36	300
203	9 34 0	0.83	-169.71	2553	WSP(>5), STV	~7.0	7.19	172.30	300
203	9 35 0	3.32	-169.90	2488	SP(>3.1), ET(3.1), STV	>8.0	7.70	172.27	300
203	9 36 0	5.85	-170.08	2421	SP(>5), ET(5), STV	>7.0	8.22	172.25	300
203	9 37 0	8.42	-170.26	2354	SP(>5), ET(5), STV	>7.0	8.76	172.27	300
203	9 38 0	11.03	-170.43	2284	M		9.32	172.31	300
203	9 39 0	13.68	-170.61	2214	WSP(>8), STV	~10.5	9.93	172.38	300
203	9 40 0	16.37	-170.78	2143	SM	>6.0	10.60	172.49	300
203	9 41 0	19.11	170.95	2071	SM	>6.0	11.36	172.64	300
203	9 42 0	21.90	-171.11	1999	M		12.24	172.84	300
203	9 43 0	24.73	-171.27	1926	M		13.29	173.11	300
203	9 44 0	27.62	-171.43	1852	M		14.56	173.46	300
203	9 45 0	30.55	-171.57	1779			16.13	173.91	300
203	9 46 0	33.54	-171.71	1705			18.08	174.46	300
203	9 47 0	36.58	-171.84	1632			20.49	175.11	300
203	9 48 0	39.67	-171.95	1559			23.40	175.86	300

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 22 JULY 1978 DAY 203

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM
203	11 24 0	-40.00	161.37	3399			-8.24	165.83	300
203	11 25 0	-37.94	161.21	3373			-6.45	165.88	300
203	11 26 0	-35.87	161.05	3343			-4.81	165.93	300
203	11 27 0	-33.78	160.88	3311			-3.33	165.98	300
203	11 28 0	-31.68	160.71	3277			-2.01	166.03	300
203	11 29 0	-29.56	160.54	3241	M		-0.83	166.07	300
203	11 30 0	-27.43	160.37	3202	M		0.21	166.10	300
203	11 31 0	-25.27	160.19	3161	M		1.14	166.13	300
203	11 32 0	-23.10	160.01	3117	M		1.97	166.16	300
203	11 33 0	-20.91	159.83	3071	M		2.72	166.18	300
203	11 34 0	-18.69	159.65	3024	M		3.38	166.19	300
203	11 35 0	-16.45	159.46	2974	M		3.99	166.20	300
203	11 36 0	-14.18	159.28	2922	M		4.55	166.20	300
203	11 37 0	-11.89	159.09	2867	M		5.06	166.20	300
203	11 38 0	-9.57	158.91	2811	M		5.54	166.19	300
203	11 39 0	-7.22	158.72	2753	M		5.99	166.18	300
203	11 40 0	-4.83	158.54	2694	SM, WSP	>6.0	6.42	166.16	300
203	11 41 0	-2.42	158.35	2632	SP, STV	≥5.0	6.85	166.14	300
203	11 42 0	0.03	158.17	2569	VSP, STV	≥6.0	7.26	166.11	300
203	11 43 0	2.51	157.99	2504	VSP, STV	≥6.0	7.68	166.07	300
203	11 44 0	5.03	157.80	2438	VVSP, STV	≥6.0	8.10	166.03	300
203	11 45 0	7.59	157.62	2371	SP	≥5.0	8.54	165.98	300
203	11 46 0	10.19	157.45	2302	VVSP, STV	≥5.0	9.00	165.91	300
203	11 47 0	12.83	157.27	2232	VSP, STV	≥6.0	9.49	165.84	300
203	11 48 0	15.51	157.10	2161	VSP	≥5.0	10.04	165.75	300
203	11 49 0	18.24	156.93	2089	VSP, STV, CE(1.3)	≥6.0	10.66	165.63	300
203	11 50 0	21.02	156.76	2017	SP(>1.5), STV	≥7.0	11.38	165.50	300
203	11 51 0	23.84	156.60	1944	SP	≥9.0	12.23	165.33	300
203	11 52 0	26.71	156.45	1871	M		13.26	165.12	300
203	11 53 0	29.63	156.30	1797			14.55	164.86	300
203	11 54 0	32.61	156.16	1724			16.18	164.53	300
203	11 55 0	35.63	156.03	1650			18.26	164.12	300
203	11 56 0	38.71	155.91	1577			20.90	163.62	300
203	11 57 0	41.85	155.80	1505			24.15	163.06	300

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 22 JULY 1970 DAY 203

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
203	23	6	0	34.27	165.58	696			25.94	166.38	300	
203	23	7	0	30.35	165.48	732	SM, ME, ER	10.0	21.69	166.47	300	Q
203	23	8	0	26.47	165.37	772	SM, ER	9.9	18.05	166.56	300	Q
203	23	9	0	22.64	165.24	816	SM, ER	9.9	15.14	166.63	300	Q
203	23	10	0	18.85	165.11	865	SM	9.7	12.87	166.69	300	Q
203	23	11	0	15.11	164.97	916	SM, ER	9.3	11.10	166.72	300	Q
203	23	12	0	11.42	164.83	971	SM, ER	9.2	9.65	166.74	300	Q
203	23	13	0	7.79	164.68	1029	SM, ER	9.7	8.41	166.74	300	Q
203	23	14	0	4.22	164.53	1089	SM	10.2	7.29	166.72	300	Q
203	23	15	0	0.70	164.37	1152	SM	>10.0	6.23	166.69	300	Q
203	23	16	0	-2.75	164.21	1217	SM	>10.0	5.17	166.64	300	Q
203	23	17	0	-6.15	164.06	1284	SM	>10.0	4.08	166.58	300	Q
203	23	18	0	-9.48	163.90	1353	SM	>10.0	2.91	166.51	300	Q
203	23	19	0	-12.75	163.74	1423	SM, CE(1.8), ME(	>10.0	1.64	166.43	300	Q
203	23	20	0	-15.97	163.58	1494	SM, ME(<2.5)	>10.0	0.23	166.33	300	Q
203	23	21	0	-19.12	163.43	1566	SM, ME(<3)	>10.0	-1.33	166.22	300	Q
203	23	22	0	-22.22	163.27	1639	SM, ME(<3)	>10.0	-3.08	166.10	300	Q
203	23	23	0	-25.26	163.12	1712	SM, ME(<2)	9.1	-5.00	165.97	300	Q
203	23	24	0	-28.24	162.97	1785	SM, ME(<3)	9.5	-7.10	165.83	300	Q

OBJECT: 3669 ISIS : PASS SUMMARY FOR KWAJALEIN FOR 23 JULY 1970 DAY 204

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
204	10	56	0	-39.40	167.32	3366			-7.59	167.61	300	
204	10	57	0	-37.33	167.17	3336			-5.83	167.57	300	
204	10	58	0	-35.24	167.00	3304			-4.23	167.54	300	
204	10	59	0	-33.13	166.84	3269			-2.80	167.51	300	
204	11	0	0	-31.01	166.67	3232			-1.51	167.48	300	
204	11	1	0	-28.87	166.49	3192			-0.38	167.45	300	
204	11	2	0	-26.72	166.32	3151			0.63	167.43	300	
204	11	3	0	-24.54	166.14	3107			1.53	167.40	300	
204	11	4	0	-22.34	165.96	3060			2.33	167.38	300	
204	11	5	0	-20.12	165.78	3012			3.04	167.36	300	
204	11	6	0	-17.87	165.60	2962			3.68	167.33	300	SC
204	11	7	0	-15.60	165.41	2909	M		4.27	167.31	300	SC
204	11	8	0	-13.30	165.23	2855	SM, WSP(>5)	>6.0	4.80	167.29	300	SC
204	11	9	0	-10.97	165.04	2798	SM, ME	>10.0	5.30	167.26	300	WS
204	11	10	0	-8.61	164.86	2740	SM, ME, RSP, CE(1.7)	>10.0	5.77	167.24	300	WS
204	11	11	0	-6.23	164.68	2680	SM, ME	>5.0	6.21	167.22	300	Q
204	11	12	0	-3.80	164.49	2618	SM, RSP, ET(1.75), CE(1.5)	>9.0	6.64	167.19	300	Q
204	11	13	0	-1.35	164.31	2554	SM, RSP	>6.0	7.05	167.16	300	Q
204	11	14	0	1.14	164.13	2489	SM, RSP, ET(3.6)	>6.0	7.46	167.13	300	Q
204	11	15	0	3.67	163.94	2423	SM, RSP	>6.0	7.87	167.10	300	Q
204	11	16	0	6.24	163.76	2355	SP, STV, ET(3.1), RSP	>9.0	8.30	167.06	300	Q
204	11	17	0	8.85	163.58	2286	SP, STV, RSP	>6.0	8.74	167.02	300	Q
204	11	18	0	11.50	163.41	2216	SP, STV, ET(4), RSP, CE(1.5)	>5.0	9.21	166.97	300	Q
204	11	19	0	14.19	163.24	2145	SP, STV, ET(5), RSP	>6.0	9.72	166.92	300	Q
204	11	20	0	16.93	163.06	2073	SM, CE(1.5)	>5.0	10.30	166.86	300	Q
204	11	21	0	19.72	162.90	2000	VSP, STV	>9.0	10.95	166.79	300	Q
204	11	22	0	22.55	162.74	1927	SM, ME	>6.0	11.72	166.71	300	SC
204	11	23	0	25.44	162.58	1854	WSP(>5)	>9.0	12.64	166.60	300	SSC
204	11	24	0	28.37	162.43	1780	SM, ME	>7.0	13.79	166.48	300	SSC
204	11	25	0	31.36	162.29	1706	SM, ME, ER	8.0	15.24	166.32	300	SC
204	11	26	0	34.40	162.15	1633	SM, ME, ER	6.9	17.11	166.12	300	SC
204	11	27	0	37.50	162.03	1560	SM, ME	6.5	19.52	165.88	300	SSC
204	11	28	0	40.64	161.92	1488	SM, ME, ER	6.7	22.56	165.59	300	Q

OBJECT: 3869 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 23 JULY 1978 DAY 204

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
204	22 38 0	31.38	171.62	741	SM, ER	10.1	22.54	169.95	300	Q
204	22 39 0	27.51	171.51	782	SM	9.9	18.77	169.64	300	Q
204	22 40 0	23.69	171.39	827	SM	9.4	15.72	169.36	300	Q
204	22 41 0	19.91	171.26	876	SM, ER	9.7	13.35	169.14	300	Q
204	22 42 0	16.19	171.12	929	SM	9.5	11.50	168.96	300	Q
204	22 43 0	12.51	170.97	984	SM, ER	9.4	10.02	168.83	300	Q
204	22 44 0	8.90	170.82	1043	SM	9.9	8.77	168.72	300	Q
204	22 45 0	5.34	170.67	1104	SM	>10.0	7.67	168.64	300	Q
204	22 46 0	1.84	170.52	1167	SM	>10.0	6.63	168.57	300	Q
204	22 47 0	-1.60	170.36	1233	SM	>10.0	5.62	168.52	300	Q
204	22 48 0	-4.99	170.20	1301	SM	>10.0	4.59	168.47	300	Q
204	22 49 0	-8.31	170.04	1370	SM	>10.0	3.51	168.44	300	Q
204	22 50 0	-11.57	169.88	1440	SM	>10.0	2.34	168.40	300	Q
204	22 51 0	-14.77	169.73	1511	SM	>10.0	1.06	168.37	300	Q
204	22 52 0	-17.91	169.57	1583			-0.37	168.34	300	
204	22 53 0	-20.99	169.41	1656			-1.96	168.31	300	
204	22 54 0	-24.02	169.26	1729			-3.73	168.28	300	
204	22 55 0	-26.99	169.11	1803			-5.68	168.25	300	
204	22 56 0	-29.90	168.96	1876			-7.80	168.22	300	

PROJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 24 JULY 1970 DAY 205

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#205#	10 28 0	-38.78	173.28	3328			-7.36	169.36	300	
#205#	10 29 0	-36.68	173.12	3296			-5.61	169.23	300	
#205#	10 30 0	-34.58	172.96	3260			-4.03	169.11	300	
#205#	10 31 0	-32.45	172.79	3223			-2.61	168.99	300	
#205#	10 32 0	-30.31	172.62	3183			-1.34	168.89	300	
#205#	10 33 0	-28.15	172.44	3140			-0.21	168.80	300	
#205#	10 34 0	-25.97	172.27	3096			0.79	168.71	300	SSC
#205#	10 35 0	-23.76	172.09	3049			1.68	168.63	300	VSSC
#205#	10 36 0	-21.53	171.91	3000	SM, ME	6.1	2.47	168.56	300	VSSC
#205#	10 37 0	-19.28	171.73	2949	SM, ME	>6.0	3.19	168.50	300	SSC
#205#	10 38 0	-17.01	171.55	2896	SM, ME	>6.0	3.83	168.44	300	SSC
#205#	10 39 0	-14.70	171.37	2841	SM	>6.0	4.41	168.39	300	VSSC
#205#	10 40 0	-12.37	171.18	2784	SM, WSP, ET(5), ME	>9.0	4.95	168.34	300	SSC
#205#	10 41 0	-10.00	171.00	2725	WSP, STV, ET(5), RSP	≥8.0	5.45	168.30	300	SSC
#205#	10 42 0	-7.61	170.81	2665	SP, STV, ET(2.9), RSP	≥8.0	5.92	168.26	300	SSC
#205#	10 43 0	-5.18	170.63	2603	ST, STV, ET(2.6), RSP, CE(1.2)	≥11.0	6.36	168.22	300	SSC
#205#	10 44 0	-2.71	170.45	2539	VSP, STV, ET(2), RSP	≥5.0	6.80	168.19	300	SSC
#205#	10 45 0	-0.21	170.27	2473	SP, STV, ET(1.75), RSP	≥6.0	7.22	168.16	300	SC
#205#	10 46 0	2.33	170.08	2407	VSP, STV, ET(1.7), RSP	≥6.0	7.64	168.13	300	WS
#205#	10 47 0	4.90	169.90	2338	SP	≥5.0	8.07	168.10	300	Q
#205#	10 48 0	7.52	169.72	2269	VSP, STV, ET(1.65), RSP	≥6.0	8.51	168.07	300	Q
#205#	10 49 0	10.18	169.55	2199	SP, STV, ET(1.8), RSP	≥6.0	8.97	168.05	300	Q
#205#	10 50 0	12.89	169.37	2127	VSP, STV, ET(2.1), RSP	≥6.0	9.47	168.02	300	Q
#205#	10 51 0	15.64	169.20	2055	VSP, STV, ET(3), RSP, CE(1.3)	>10.0	10.03	168.00	300	Q
#205#	10 52 0	18.44	169.04	1983	SP,STV,ET(3.6),RSP,ME,CE(1.2)	>10.0	10.65	167.98	300	Q
#205#	10 53 0	21.29	168.87	1910	SP, STV, ET(7.5), ME	>10.0	11.38	167.96	300	Q
#205#	10 54 0	24.18	168.72	1836	SM, ME	>8.0	12.25	167.94	300	Q
#205#	10 55 0	27.13	168.56	1762	SM, ME	~9.5	13.31	167.92	300	WS
#205#	10 56 0	30.13	168.42	1689	SM, ME	9.1	14.66	167.90	300	WS
#205#	10 57 0	33.19	168.28	1616	SM, ME	9.0	16.39	167.88	300	Q
#205#	10 58 0	36.29	168.16	1543	SM, ME	8.3	18.63	167.86	300	WS
#205#	10 59 0	39.46	168.04	1471	SM, ME	7.6	21.50	167.84	300	Q
#205#	11 0 0	42.68	167.95	1400	SM, ME, ER	7.6	25.05	167.82	300	Q

ORBIT: 3687 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 24 JULY 1978 DAY 205

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
205	22 9 0	32.39	177.76	750			23.87	173.69	300	
205	22 10 0	28.54	177.65	792			19.96	173.00	300	
205	22 11 0	24.73	177.53	839	SM	>10.0	16.71	172.35	300	Q
205	22 12 0	20.96	177.40	888	SM	>10.0	14.13	171.81	300	Q
205	22 13 0	17.25	177.26	942	SM	>10.0	12.11	171.38	300	Q
205	22 14 0	13.59	177.13	998	SM	10.2	10.50	171.06	300	Q
205	22 15 0	9.99	176.97	1057	SM	9.7	9.17	170.81	300	Q
205	22 16 0	6.44	176.82	1119	SM	9.8	8.01	170.64	300	Q
205	22 17 0	2.96	176.66	1183	SM	10.0	6.94	170.51	300	Q
205	22 18 0	0.47	176.51	1249	SM	>10.0	5.92	170.42	300	Q
205	22 19 0	-3.84	176.35	1317	SM	>10.0	4.90	170.36	300	Q
205	22 20 0	-7.14	176.19	1386	SM	>10.0	3.84	170.33	300	Q
205	22 21 0	10.39	176.03	1457	SM	>10.0	2.71	170.32	300	Q
205	22 22 0	-13.58	175.87	1528	SM	>10.0	1.49	170.33	300	Q
205	22 23 0	16.70	175.71	1601	SM	>10.0	0.14	170.36	300	Q
205	22 24 0	-19.77	175.55	1674			-1.35	170.41	300	
205	22 25 0	-22.79	175.39	1747			-3.01	170.46	300	
205	22 26 0	-25.75	175.24	1820			-4.83	170.52	300	
205	22 27 0	28.65	175.09	1894			-6.83	170.58	300	

PROJECT 4662 ISSUE 1 PASS SUMMARY FOR KWAJALEIN FOR 25 JULY 1978 DAY 206

DAY	TIME (GMT) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#206#	10 0 0	38.12	179.36	3287			-7.55	171.20	300	
#206#	10 1 0	36.01	179.07	3251			-5.80	170.98	300	
#206#	10 2 0	33.88	178.91	3213			-4.21	170.77	300	
#206#	10 3 0	31.74	178.74	3173			-2.77	170.58	300	
#206#	10 4 0	29.57	178.57	3130			-1.48	170.40	300	
#206#	10 5 0	27.38	178.40	3085			-0.32	170.23	300	
#206#	10 6 0	25.17	178.22	3037			0.70	170.08	300	
#206#	10 7 0	22.94	178.04	2988			1.62	169.95	300	
#206#	10 8 0	20.68	177.86	2937			2.43	169.83	300	
#206#	10 9 0	18.40	177.68	2883			3.17	169.72	300	
#206#	10 10 0	16.09	177.50	2828			3.83	169.63	300	
#206#	10 11 0	13.75	177.32	2770			4.43	169.54	300	
#206#	10 12 0	11.38	177.14	2711	SP, STV, ME, ET, RSP	≥6.0	4.99	169.47	300	
#206#	10 13 0	8.97	176.95	2650	SP, STV, ME, ET, RSP	≥7.0	5.51	169.40	300	
#206#	10 14 0	6.54	176.77	2587	VSP, STV, RSP	≥5.0	6.00	169.35	300	SSC
#206#	10 15 0	4.06	176.59	2523	VSP, STV, ET(1.7), RSP	≥6.0	6.47	169.30	300	SSC
#206#	10 16 0	1.55	176.41	2457	VSP, STV, ET(1.7), RSP	≥6.5	6.92	169.26	300	SSC
#206#	10 17 0	0.99	176.22	2390	VSP, STV, ET(1.6), RSP	≥6.0	7.37	169.22	300	SC
#206#	10 18 0	3.58	176.04	2322	VVSP, STV, ET(1.6), RSP	≥6.0	7.82	169.20	300	WS
#206#	10 19 0	6.21	175.87	2252	VSP, STV, ET(1.8)	≥7.0	8.28	169.18	300	WS
#206#	10 20 0	8.88	175.69	2182	VSP, STV, ET(1.8)	≥5.0	8.76	169.17	300	WS
#206#	10 21 0	11.60	175.51	2110	WSP, STV, RSP	≥7.0	9.27	169.17	300	WS
#206#	10 22 0	14.36	175.34	2038	VSP, STV, ET(2.7), RSP	≥11.0	9.82	169.18	300	SC
#206#	10 23 0	17.17	175.17	1965	SM, RSP	>9.0	10.45	169.20	300	SC
#206#	10 24 0	20.03	175.01	1892	SM	>10.0	11.17	169.23	300	SC
#206#	10 25 0	22.94	174.85	1818	SM	>10.0	12.02	169.29	300	WS
#206#	10 26 0	25.90	174.70	1745	SM	>10.0	13.06	169.36	300	WS
#206#	10 27 0	28.92	174.55	1671	SM, ME	>10.0	14.37	169.47	300	WS
#206#	10 28 0	31.99	174.41	1598	SM	>10.0	16.03	169.61	300	WS
#206#	10 29 0	35.11	174.29	1526	SM, ER	8.5	18.19	169.80	300	SC
#206#	10 30 0	38.29	174.17	1454	SM	8.0	20.95	170.03	300	WS
#206#	10 31 0	41.52	174.07	1383			24.38	170.30	300	WS

ORBIT: 4669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 25 JULY 1978 DAY 206

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
206	12 10 0	-34.59	146.78	3223			-6.50	161.21	300	
206	12 11 0	-32.45	146.62	3183			-4.96	161.42	300	
206	12 12 0	-30.29	146.45	3141			-3.55	161.62	300	
206	12 13 0	-28.11	146.27	3096			-2.27	161.81	300	
206	12 14 0	-25.91	146.10	3049			-1.11	161.98	300	
206	12 15 0	-23.68	145.92	3001			-0.05	162.13	300	
206	12 16 0	-21.43	145.74	2950			0.90	162.27	300	
206	12 17 0	-19.15	145.56	2897			1.77	162.38	300	
206	12 18 0	-16.85	145.38	2842			2.57	162.48	300	
206	12 19 0	-14.51	145.20	2785			3.30	162.55	300	
206	12 20 0	-12.15	145.02	2726			3.98	162.60	300	
206	12 21 0	-9.76	144.83	2665			4.61	162.63	300	
206	12 22 0	-7.33	144.65	2603	SM, ME	>5.0	5.22	162.64	300	SSC
206	12 23 0	4.86	144.47	2539	SM, ME, CE(1.5)	>9.0	5.80	162.63	300	SC
206	12 24 0	-2.36	144.29	2474	SM	>6.0	6.36	162.60	300	SC
206	12 25 0	0.17	144.10	2407	SM, CE(1.5)	>7.0	6.92	162.54	300	SC
206	12 26 0	2.75	143.92	2339	SM	>5.0	7.49	162.45	300	SC
206	12 27 0	5.37	143.74	2270	SM, ME, CE(1.3)	>7.0	8.07	162.33	300	SC
206	12 28 0	8.03	143.57	2199	SM, ME	>7.0	8.69	162.17	300	SC
206	12 29 0	10.74	143.39	2128	SM, ME	>7.0	9.35	161.98	300	SC
206	12 30 0	13.49	143.22	2056	SM, ME	≥5.0	10.09	161.72	300	WS
206	12 31 0	16.29	143.05	1983	SM, ME	>9.0	10.92	161.41	300	SC
206	12 32 0	19.13	142.89	1910	SM, ME	≥7.0	11.88	161.02	300	SC
206	12 33 0	22.03	142.73	1837	SM, ME	≥9.0	13.02	160.54	300	SC
206	12 34 0	24.98	142.57	1763	SM, ME	≥5.0	14.40	159.95	300	WS
206	12 35 0	27.98	142.42	1690	SM, ME	8.6	16.08	159.23	300	WS
206	12 36 0	31.03	142.28	1616	SM, ME	>6.5	18.14	158.37	300	WS
206	12 37 0	34.14	142.15	1544	SM, ME	~8.5	20.64	157.39	300	WS

OBJECT: 4669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 25 JULY 1978 DAY 206

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
206	21 41 0	29.55	176.21	803			21.59	176.95	300	
206	21 42 0	25.75	176.33	850	SM, ER	9.4	18.14	175.97	300	
206	21 43 0	22.00	176.46	901	SM, ER	9.7	15.29	175.09	300	Q
206	21 44 0	18.30	-176.59	955	SM, ER	10.5	13.00	174.36	300	Q
206	21 45 0	14.66	-176.73	1012	SM, ER	10.6	11.17	173.78	300	Q
206	21 46 0	11.07	-176.88	1072	SM, ER	10.4	9.66	173.34	300	Q
206	21 47 0	7.54	-177.03	1134	SM, ER	10.4	8.37	173.01	300	Q
206	21 48 0	4.07	-177.19	1199	SM, ER	10.6	7.21	172.78	300	Q
206	21 49 0	0.65	-177.35	1265	SM, ER	12.1	6.12	172.62	300	Q
206	21 50 0	-2.70	-177.51	1334	SM, ER	12.7	5.05	172.52	300	Q
206	21 51 0	-5.99	-177.67	1403	SM, ER	13.0	3.96	172.47	300	Q
206	21 52 0	-9.22	-177.83	1474	SM, ER	11.0	2.82	172.46	300	Q
206	21 53 0	-12.40	-177.99	1546	SM, ER	11.0	1.60	172.49	300	Q
206	21 54 0	-15.51	-178.15	1619	SM, ME(NP), ER	8.5	0.28	172.55	300	Q
206	21 55 0	-18.57	-178.31	1692	SM, ER	~8.5	-1.17	172.64	300	Q
206	21 56 0	-21.57	-178.47	1765	SM, ER	10.2	-2.76	172.75	300	Q
206	21 57 0	-24.51	178.62	1838	SM, ER	10.5	-4.51	172.88	300	Q
206	21 58 0	-27.40	-178.78	1912	SM, ER	10.3	6.41	173.01	300	Q
206	23 49 0	30.69	151.65	792			22.69	158.25	300	
206	23 50 0	26.88	151.54	838	SM, ER	9.0	19.11	159.09	300	
206	23 51 0	23.11	151.41	888	SM, ER	8.7	16.12	159.85	300	Q
206	23 52 0	19.40	151.28	941	SM, ER	9.5	13.70	160.50	300	Q
206	23 53 0	15.74	151.14	998	SM, ER	10.5	11.75	161.00	300	Q
206	23 54 0	12.14	150.99	1057	SM, ER	10.5	10.14	161.36	300	Q
206	23 55 0	8.59	150.84	1118	SM, ER	11.1	8.76	161.60	300	Q
206	23 56 0	5.11	150.68	1183	SM, ER	11.8	7.52	161.75	300	Q
206	23 57 0	1.68	150.53	1249	SM	13.1	6.36	161.82	300	Q
206	23 58 0	-1.69	150.37	1316	SM	>10.0	5.22	161.81	300	Q
206	23 59 0	4.99	150.21	1386	SM	11.5	4.06	161.74	300	Q
207	0 0 0	8.24	150.05	1456	SM, ER	10.9	2.85	161.62	300	Q
207	0 1 0	11.43	149.89	1528	SM, ER	10.9	1.55	161.44	300	Q
207	0 2 0	14.56	149.72	1600	SM	9.8	0.15	161.22	300	Q
207	0 3 0	17.63	149.56	1673	SM, ME(<2)	10.2	1.38	160.97	300	
207	0 4 0	20.64	149.41	1747			-3.04	160.68	300	
207	0 5 0	-23.60	149.25	1820			-4.86	160.37	300	

PASS SUMMARY FOR KWAJALEIN FOR 26 JULY 1978 DAY 207

[illegible]	SATELLITE LOCATION			IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION
HR MN SC	LAT	LONG	ALT KM	DESCRIPTION	F-MAX MHZ	LAT	LONG	ALT KM	SUMMARY
[illegible] 0	35.30	-174.97	3203			6.59	173.98	300	
[illegible] 0	33.15	175.14	3162			4.77	173.69	300	
[illegible] 0	30.98	-175.30	3119			3.28	173.41	300	
[illegible] 0	28.79	175.48	3073			1.94	173.15	300	
[illegible] 0	26.58	-175.65	3025			0.74	171.90	300	
[illegible] 0	24.34	-175.82	2976			0.34	171.68	300	
[illegible] 0	22.07	-176.00	2924			1.31	171.48	300	
[illegible] 0	19.78	-176.18	2870			2.18	171.30	300	
[illegible] 0	17.47	-176.36	2814			2.97	171.15	300	SC
[illegible] 0	15.12	176.54	2756			3.68	171.01	300	SC
[illegible] 0	12.74	-176.73	2696	SP, STV, RSP, ME	≥7.0	4.33	170.89	300	SC
[illegible] 0	10.33	-176.91	2635	SP, STV, RSP, ME	≥6.0	4.93	170.78	300	SC
[illegible] 0	7.88	-177.09	2572	SP, STV	≥6.0	5.49	170.69	300	SC
[illegible] 0	5.40	-177.27	2507	VSP, STV, ET(3), RSP	≥5.0	6.03	170.62	300	SC
[illegible] 0	2.88	177.45	2441	SP, STV, ME, RSP	≥3.0	6.53	170.56	300	SC
[illegible] 0	0.33	-177.63	2373	VSP, STV, ET(2.3), RSP	≥5.0	7.03	170.52	300	SC
[illegible] 0	2.27	-177.81	2305	VSP, STV, ET(1.8), RSP	≥6.0	7.52	170.48	300	SC
[illegible] 0	4.91	-177.99	2235	VSP, STV, ET(1.8)	≥6.0	8.02	170.47	300	SC
[illegible] 0	7.59	-178.17	2164	SP, STV	≥6.0	8.53	170.47	300	SSC
[illegible] 0	10.32	178.34	2092	VSP, STV	≥6.0	9.08	170.49	300	SSC
[illegible] 0	13.10	-178.52	2020	VSP	≥6.0	9.67	170.52	300	SSC
[illegible] 0	15.92	-178.69	1947	VSP	≥6.0	10.32	170.59	300	SSC
[illegible] 0	18.79	178.85	1874	SP, STV	≥6.0	11.07	170.68	300	SSC
[illegible] 0	21.72	179.01	1800	VSP, STV, ET?(1.6)	≥7.0	11.95	170.81	300	SSC
[illegible] 0	24.69	179.17	1727	SP(>5)	≥8.0	13.02	170.98	300	SSC
[illegible] 0	27.72	179.31	1656	SM, WSP(>4)	≥9.5	14.34	171.22	300	SSC
[illegible] 0	30.80	179.45	1580			16.01	171.52	300	SC
[illegible] 0	33.94	179.58	1508			18.16	171.92	300	SC
[illegible] 1	37.13	179.70	1436			20.88	172.40	300	WS
[illegible] 2	40.38	179.81	1366			24.22	172.95	300	Q

OBJECT: 8669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 26 JULY 1970 DAY 207

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
207	11	41	0	-36.01	152.90	3213			6.51	163.28	300	
207	11	42	0	-33.87	152.74	3173			-4.91	163.43	300	
207	11	43	0	-31.70	152.57	3130			-3.46	163.58	300	
207	11	44	0	-29.52	152.40	3085			-2.15	163.71	300	
207	11	45	0	-27.31	152.23	3038			-0.97	163.84	300	
207	11	46	0	-25.08	152.05	2988			0.10	163.95	300	
207	11	47	0	-22.82	151.88	2937			1.05	164.04	300	
207	11	48	0	-20.54	151.70	2883			1.91	164.12	300	
207	11	49	0	-18.23	151.52	2828			2.69	164.19	300	
207	11	50	0	-15.89	151.34	2770			3.40	164.24	300	
207	11	51	0	-13.51	151.16	2711			4.05	164.28	300	SSC
207	11	52	0	-11.11	150.97	2650			4.66	164.31	300	SSC
207	11	53	0	-8.67	150.79	2588			5.22	164.32	300	SSC
207	11	54	0	-6.20	150.61	2523			5.76	164.31	300	SSC
207	11	55	0	-3.69	150.43	2458	SP(>1.8), STV, ME	≥5.0	6.29	164.29	300	SSC
207	11	56	0	-1.15	150.25	2390	VSP, STV, RSP, ME	≥6.0	6.80	164.25	300	SSC
207	11	57	0	1.44	150.07	2322	VVSP, STV, ET(2.2), RSP	≥5.0	7.31	164.20	300	SSC
207	11	58	0	4.07	149.89	2252	VSP, STV, ET(2), RSP	≥6.0	7.83	164.13	300	SC
207	11	59	0	6.74	149.71	2182	VVSP, STV, ET(1.8), RSP	≥9.0	8.37	164.03	300	SC
207	12	0	0	9.46	149.53	2110	VSP, STV, ET(2), RSP	≥9.0	8.95	163.91	300	SC
207	12	1	0	12.22	149.36	2038	VVSP, STV, ET(2.3), RSP	≥6.0	9.57	163.75	300	SSC
207	12	2	0	15.03	149.19	1965	SP, STV, RSP	≥6.0	10.27	163.56	300	SSC
207	12	3	0	17.89	149.03	1892	SP, STV, ET(4), RSP	≥11.0	11.07	163.32	300	SSC
207	12	4	0	20.80	148.86	1819	SM	≥8.0	12.02	163.01	300	SSC
207	12	5	0	23.76	148.71	1745	SM, CE(1.6)	≥9.0	13.16	162.63	300	VSSC
207	12	6	0	26.78	148.56	1672	SM, ME, CE(1.4)	≥6.0	14.56	162.15	300	VSSC
207	12	7	0	29.85	148.41	1598	SM, ME, ER	≥8.0	16.33	161.55	300	SSC
207	12	8	0	32.97	148.28	1526	SM, ME	≥8.0	18.54	160.82	300	SSC
207	12	9	0	36.15	148.16	1454	SM, WSP, ME	≥8.5	21.28	159.97	300	SSC

OBJECT: 4662 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 26 JULY 1978 DAY 207

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
207	23	20	0	31.68	157.79	803	SM, ER	9.1	22.48	162.21	300	Q
207	23	21	0	27.88	157.68	850	SM, ER	9.8	18.84	162.77	300	Q
207	23	22	0	24.13	157.56	901	SM, ER	10.1	15.89	163.26	300	Q
207	23	23	0	20.44	157.42	955	SM, ER	10.4	13.57	163.66	300	Q
207	23	24	0	16.79	157.28	1012	SM, ER	10.8	11.76	163.95	300	Q
207	23	25	0	13.20	157.14	1072	SM, ER	10.4	10.29	164.16	300	Q
207	23	26	0	9.67	156.99	1134	SM, ER	10.4	9.06	164.29	300	Q
207	23	27	0	6.20	156.83	1199	SM	>10.0	7.97	164.37	300	Q
207	23	28	0	2.79	156.67	1265	SM	11.2	6.95	164.40	300	Q
207	23	29	0	-0.56	156.51	1334	SM	12.0	5.97	164.38	300	Q
207	23	30	0	-3.86	156.35	1403	SM	>12.0	4.99	164.34	300	Q
207	23	31	0	-7.09	156.19	1474	SM, ER	≤10.0	3.96	164.25	300	Q
207	23	32	0	-10.26	156.03	1546	SM, ER	≤10.0	2.87	164.14	300	Q
207	23	33	0	-13.38	155.87	1619			1.68	164.00	300	
207	23	34	0	-16.44	155.71	1692			0.37	163.82	300	
207	23	35	0	-19.44	155.55	1765			-1.07	163.62	300	
207	23	36	0	-22.38	155.39	1838			-2.68	163.40	300	
207	23	37	0	-25.28	155.23	1912			-4.44	163.16	300	
207	23	38	0	-28.12	155.08	1985			-6.36	162.91	300	

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 27 JULY 1978 DAY 208

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
208	9	6	0	-32.38	169.18	3108			-5.73	175.02	300	
208	9	7	0	30.18	169.35	3061			-4.19	174.66	300	
208	9	8	0	27.96	169.52	3013			-2.77	174.32	300	
208	9	9	0	25.72	169.69	2963			-1.49	173.99	300	
208	9	10	0	23.45	169.87	2910			-0.32	173.70	300	
208	9	11	0	21.16	170.05	2856			0.74	173.42	300	
208	9	12	0	18.83	170.23	2799			1.69	173.18	300	
208	9	13	0	16.48	-170.41	2741			2.56	172.96	300	
208	9	14	0	14.09	170.59	2681			3.35	172.77	300	
208	9	15	0	11.67	170.77	2619			4.07	172.60	300	
208	9	16	0	9.22	-170.95	2556			4.75	172.46	300	
208	9	17	0	6.73	-171.13	2491	VSP, RSP	≥6.0	5.38	172.35	300	SC
208	9	18	0	4.20	-171.31	2424	VSP, RSP	≥5.0	5.98	172.25	300	WS
208	9	19	0	1.63	-171.49	2356	VSP, RSP	≥6.0	6.56	172.19	300	WS
208	9	20	0	0.98	-171.67	2287	VSP, STV, RSP	≥7.0	7.12	172.14	300	SC
208	9	21	0	3.63	-171.85	2217	VVSP, STV, RSP	≥7.0	7.69	172.12	300	SC
208	9	22	0	6.32	-172.03	2146	VSP, RSP	≥5.0	8.27	172.13	300	SC
208	9	23	0	9.06	-172.20	2074	SP, ME	≥6.0	8.88	172.16	300	SSC
208	9	24	0	11.85	172.38	2002	VSP	≥4.0	9.54	172.23	300	SSC
208	9	25	0	14.68	-172.54	1929	SP	≥10.0	10.26	172.34	300	SSC
208	9	26	0	17.57	-172.71	1855	SM, SP	≥6.0	11.08	172.50	300	SSC
208	9	27	0	20.51	172.87	1782	SM, WSP(NP)	≥9.0	12.03	172.72	300	VSSC
208	9	28	0	23.49	-173.03	1708	SM	≥6.0	13.17	173.01	300	VSSC
208	9	29	0	26.54	173.18	1635	SM, ME, ER	8.1	14.57	173.39	300	SSC
208	9	30	0	29.64	-173.32	1562	SM, ME, ER	≥6.0	16.33	173.87	300	SC
208	9	31	0	32.79	-173.45	1490	SM, ME, ER	7.7	18.53	174.48	300	WS
208	9	32	0	36.00	-173.58	1419	SM, ME, ER	6.7	21.26	175.19	300	Q

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 27 JULY 1978 DAY 208

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
208	11 12 0	-37.42	159.02	3203			-6.98	165.14	300	SSC
208	11 13 0	-35.27	158.86	3162			-5.30	165.22	300	SSC
208	11 14 0	-33.10	158.69	3119			-3.77	165.29	300	SSC
208	11 15 0	-30.91	158.53	3073			-2.39	165.36	300	SSC
208	11 16 0	-28.70	158.36	3025			-1.16	165.43	300	SSC
208	11 17 0	-26.46	158.18	2975			-0.06	165.49	300	SSC
208	11 18 0	-24.20	158.01	2923			0.93	165.54	300	SSC
208	11 19 0	-21.91	157.83	2869			1.81	165.58	300	SSC
208	11 20 0	-19.59	157.65	2814			2.60	165.61	300	SSC
208	11 21 0	-17.24	157.47	2756			3.32	165.64	300	SSC
208	11 22 0	-14.87	157.29	2696	SM, ME	>3.0	3.97	165.65	300	SSC
208	11 23 0	-12.46	157.11	2635	SM, ME	≥7.0	4.57	165.66	300	SSC
208	11 24 0	-10.01	156.93	2572	SM	≥6.0	5.13	165.66	300	SSC
208	11 25 0	-7.53	156.75	2507	SP, STV, ET(2.8)	≥9.0	5.66	165.65	300	SSC
208	11 26 0	-5.01	156.57	2441	SP	≥6.0	6.16	165.64	300	SSC
208	11 27 0	-2.45	156.39	2373	VSP, STV, ET(1.8)	≥5.0	6.65	165.61	300	SSC
208	11 28 0	0.14	156.21	2305	VSP, STV, ET(1.4), RSP	≥7.0	7.13	165.57	300	SSC
208	11 29 0	2.78	156.03	2235	VSP, STV, ET(1.5), RSP	≥6.0	7.62	165.52	300	SSC
208	11 30 0	5.47	155.85	2164	VSP, STV, ET(1.3), RSP	≥6.0	8.12	165.46	300	SSC
208	11 31 0	8.19	155.68	2092	VSP, STV, ET(1.5), RSP	≥6.0	8.64	165.39	300	SSC
208	11 32 0	10.97	155.50	2020	VSP, STV, ET(1.6), RSP	≥7.0	9.20	165.29	300	SSC
208	11 33 0	13.79	155.33	1947	VSP, STV, ET(1.6), RSP	≥6.0	9.82	165.17	300	SSC
208	11 34 0	16.67	155.17	1874	SP, STV	≥6.0	10.52	165.03	300	SSC
208	11 35 0	19.59	155.00	1800	VSP, STV, ET(2.8)	≥9.5	11.34	164.85	300	SSC
208	11 36 0	22.57	154.85	1727	SSP	≥7.0	12.31	164.62	300	SSC
208	11 37 0	25.60	154.69	1653	SM, WSP(NP)	≥10.0	13.51	164.32	300	SSC
208	11 38 0	28.68	154.55	1580	SM, ME	≥7.0	15.03	163.95	300	SC
208	11 39 0	31.82	154.41	1508	SM, ME, ER	7.2	16.97	163.49	300	SSC
208	11 40 0	35.01	154.29	1436	SM, ME, ER	7.4	19.45	162.91	300	SSC
208	11 41 0	38.27	154.17	1366			22.54	162.24	300	WS

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 27 JULY 1970 DAY 208

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
208	22	51	0	32.66	163.93	814	SM, ER	9.6	22.66	165.69	300	Q
208	22	52	0	28.88	163.82	862	SM, ER	10.2	18.94	165.88	300	Q
208	22	53	0	25.14	163.70	914	SM, ME, ER	9.7	15.97	166.05	300	Q
208	22	54	0	21.46	163.57	969	SM	>10.0	13.67	166.18	300	Q
208	22	55	0	17.83	163.43	1027	SM	9.6	11.90	166.27	300	Q
208	22	56	0	14.26	163.28	1087	SM	9.3	10.50	166.33	300	Q
208	22	57	0	10.74	163.13	1150	SM	9.6	9.33	166.36	300	Q
208	22	58	0	7.28	162.98	1215	SM	9.8	8.31	166.37	300	Q
208	22	59	0	3.89	162.82	1282	SM	>10.0	7.38	166.36	300	Q
208	23	0	0	0.55	162.66	1351	SM	>10.0	6.49	166.34	300	Q
208	23	1	0	-2.73	162.50	1421	SM	>10.0	5.60	166.30	300	Q
208	23	2	0	-5.95	162.34	1492	SM	>10.0	4.69	166.25	300	Q
208	23	3	0	-9.10	162.17	1564	SM	>10.0	3.73	166.18	300	Q
208	23	4	0	-12.21	162.01	1637	SM, ME	9.9	2.70	166.10	300	Q
208	23	5	0	-15.25	161.85	1710	SM, CE(1.3), ER	9.2	1.56	166.00	300	Q
208	23	6	0	-18.24	161.69	1784	SM, ME(<2), ER	8.7	0.29	165.89	300	Q
208	23	7	0	-21.17	161.53	1857	SM, ME(<2), ER	~9.0	-1.12	165.76	300	Q
208	23	8	0	-24.05	161.37	1930	SM, ME(<2), ER	8.5	-2.69	165.62	300	Q
208	23	9	0	-26.88	161.21	2003	SM, ME(<2.5), ER	7.6	-4.43	165.47	300	Q
208	23	10	0	-29.66	161.06	2075	SM, ER	7.8	-6.34	165.31	300	Q

OBJECT: 3669 1515 1 PASS SUMMARY FOR KWAJALEIN FOR 28 JULY 1978 DAY 209

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
209	8	39	0	-29.34	-163.39	3000			-5.49	177.53	300	
209	8	40	0	-27.09	-163.56	2949			-4.00	177.13	300	
209	8	41	0	-24.82	-163.74	2896			-2.61	176.74	300	
209	8	42	0	-22.52	-163.91	2841			-1.34	176.37	300	
209	8	43	0	-20.18	-164.09	2785			-0.17	176.02	300	
209	8	44	0	-17.82	-164.27	2726	SM, ME	>8.0	0.90	175.71	300	Q
209	8	45	0	-15.43	-164.45	2665	SM, ME	>9.0	1.89	175.43	300	Q
209	8	46	0	-13.00	-164.63	2603	WSP, STV, RSP, ET(5)	>9.0	2.79	175.18	300	Q
209	8	47	0	-10.54	-164.81	2539	SP, STV, RSP, ET(3.2)	>10.0	3.63	174.97	300	Q
209	8	48	0	-8.04	-164.99	2474	SP, STV, RSP, ET(2.5)	>9.0	4.42	174.79	300	Q
209	8	49	0	-5.50	-165.17	2407	VSP, STV, RSP, ET(2.2)	>10.0	5.16	174.64	300	Q
209	8	50	0	-2.92	-165.35	2339	VSP, STV, RSP, ET(2.1)	8.4	5.86	174.53	300	Q
209	8	51	0	-0.31	-165.53	2270	VSP, STV, RSP, ET(2)	8.0	6.55	174.46	300	Q
209	8	52	0	2.36	-165.71	2199	SP, STV, ET(2)	8.5	7.24	174.43	300	Q
209	8	53	0	5.06	165.89	2128	VSP, STV, RSP, ET(2.3), ER	9.3	7.93	174.44	300	Q
209	8	54	0	7.81	-166.06	2056	SM, RSP	>9.5	8.65	174.50	300	Q
209	8	55	0	10.61	-166.23	1983	WSP, STV, RSP, ET(3.8)	>11.0	9.41	174.60	300	Q
209	8	56	0	13.46	-166.40	1910	SM	>10.0	10.25	174.77	300	Q
209	8	57	0	16.36	-166.57	1837	SM, ER	10.3	11.18	175.01	300	Q
209	8	58	0	19.31	-166.73	1763	SM	~10.0	12.27	175.34	300	Q
209	8	59	0	22.31	-166.89	1690	SM	~9.5	13.55	175.76	300	Q
209	9	0	0	25.37	-167.04	1616	SM, ME(<2.5)	8.7	15.09	176.30	300	Q
209	9	1	0	28.48	-167.18	1544	SM, ME(<3)	8.3	16.97	176.97	300	Q
209	9	2	0	31.65	-167.32	1472	SM, ME, ER	7.0	19.27	177.78	300	Q
209	9	3	0	34.88	167.44	1401			22.03	178.69	300	

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 28 JULY 1978 DAY 209

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#209#	10	43	0	-38.82	165.13	3193			-7.94	166.94	300	
#209#	10	44	0	-36.67	164.98	3151			-6.14	166.93	300	
#209#	10	45	0	-34.49	164.82	3107			-4.51	166.93	300	
#209#	10	46	0	-32.30	164.65	3061	SM, ME, ER	5.4	-3.03	166.93	300	
#209#	10	47	0	-30.08	164.48	3013	SM, ME, ER	5.8	-1.71	166.92	300	Q
#209#	10	48	0	-27.83	164.31	2962	SM, ME	>5.0	-0.53	166.92	300	Q
#209#	10	49	0	-25.57	164.14	2910	SM, ME	5.5	0.53	166.92	300	Q
#209#	10	50	0	-23.27	163.96	2855	SM, ME, ER	5.5	1.46	166.91	300	Q
#209#	10	51	0	-20.95	163.79	2799	SM, ME	5.4	2.30	166.90	300	Q
#209#	10	52	0	-18.59	163.61	2741	SM, ME, ER	5.6	3.05	166.89	300	Q
#209#	10	53	0	-16.21	163.43	2680	SM, ME, CE(1.3)	5.5	3.73	166.88	300	Q
#209#	10	54	0	-13.79	163.25	2619	SM, ME	>7.0	4.35	166.87	300	Q
#209#	10	55	0	-11.33	163.07	2555	SM, ME	>7.0	4.93	166.85	300	Q
#209#	10	56	0	-8.84	162.89	2490	SM	>7.0	5.46	166.83	300	Q
#209#	10	57	0	-6.32	162.71	2424	SM	>10.0	5.97	166.81	300	Q
#209#	10	58	0	-3.75	162.53	2356	SM	>10.0	6.46	166.78	300	Q
#209#	10	59	0	-1.14	162.35	2287	SM	>9.0	6.93	166.75	300	Q
#209#	11	0	0	1.51	162.17	2217	SM	>10.0	7.41	166.72	300	Q
#209#	11	1	0	4.21	161.99	2146	SM	>10.0	7.89	166.67	300	Q
#209#	11	2	0	6.95	161.82	2074	SM	>10.0	8.39	166.63	300	Q
#209#	11	3	0	9.73	161.64	2001	SM	>10.0	8.92	166.57	300	Q
#209#	11	4	0	12.57	161.47	1928	SM	>10.0	9.49	166.50	300	Q
#209#	11	5	0	15.46	161.31	1855	SM	>9.0	10.13	166.42	300	Q
#209#	11	6	0	18.39	161.14	1781	SM	~8.0	10.87	166.32	300	Q
#209#	11	7	0	21.38	160.98	1708	SM	~8.0	11.75	166.20	300	Q
#209#	11	8	0	24.43	160.83	1635	SM	8.0	12.81	166.05	300	Q
#209#	11	9	0	27.53	160.69	1562	SM, ME	>7.0	14.16	165.85	300	Q
#209#	11	10	0	30.68	160.55	1489	SM, ME	7.8	15.88	165.61	300	Q
#209#	11	11	0	33.89	160.42	1418	SM, ME, ER	8.2	18.13	165.30	300	Q
#209#	11	12	0	37.16	160.30	1348	SM, ME	>7.0	21.01	164.92	300	Q
#209#	11	13	0	40.48	160.20	1279			24.57	164.49	300	

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 28 JULY 1978 DAY 209

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
209	22 22 0	33.63	170.07	826			23.33	168.99	300	Q
209	22 23 0	29.86	169.96	875	SM, ER	10.4	19.49	168.79	300	Q
209	22 24 0	26.14	169.84	928	SM, ER	9.7	16.41	168.61	300	Q
209	22 25 0	22.47	169.71	983	SM, ER	10.1	14.04	168.46	300	Q
209	22 26 0	18.86	169.57	1042	SM, ER	9.8	12.22	168.35	300	Q
209	22 27 0	15.30	169.43	1103	SM, ER	9.1	10.79	168.25	300	Q
209	22 28 0	11.80	169.28	1167	SM	8.5	9.62	168.18	300	Q
209	22 29 0	8.36	169.13	1232	SM	7.9	8.61	168.12	300	Q
209	22 30 0	4.98	168.97	1300	SM	9.0	7.71	168.06	300	Q
209	22 31 0	1.65	168.81	1369	SM	9.5	6.85	168.01	300	Q
209	22 32 0	-1.61	168.65	1439	SM	>10.0	6.02	167.97	300	Q
209	22 33 0	-4.81	168.48	1511	SM	>10.0	5.17	167.93	300	Q
209	22 34 0	-7.96	168.32	1583	SM	>10.0	4.29	167.89	300	Q
209	22 35 0	-11.04	168.15	1656	SM	>10.0	3.34	167.84	300	Q
209	22 36 0	-14.07	167.99	1729	SM	10.1	2.31	167.80	300	Q
209	22 37 0	-17.05	167.83	1803	SM, ME	9.7	1.17	167.76	300	Q
209	22 38 0	-19.97	167.67	1876			-0.09	167.71	300	
209	22 39 0	-22.84	167.50	1949			-1.51	167.66	300	
209	22 40 0	-25.65	167.35	2022			-3.10	167.60	300	
209	22 41 0	-28.42	167.19	2094			-4.85	167.55	300	
209	22 42 0	-31.14	167.04	2166			-6.77	167.48	300	

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 29 JULY 1978 DAY 210

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
210	8 14 0	-21.53	-157.96	2769			-2.72	179.97	300	
210	8 15 0	-19.16	-158.13	2710			-1.42	179.58	300	
210	8 16 0	-16.75	-158.31	2649			-0.21	179.23	300	
210	8 17 0	-14.32	-158.49	2587			0.92	178.90	300	
210	8 18 0	-11.85	-158.67	2522			1.98	178.61	300	WS
210	8 19 0	-9.34	-158.85	2457			2.98	178.36	300	WS
210	8 20 0	-6.79	-159.03	2389			3.92	178.16	300	WS
210	8 21 0	-4.20	-159.21	2321			4.82	178.00	300	WS
210	8 22 0	-1.57	-159.39	2251			5.69	177.90	300	SC
210	8 23 0	1.10	-159.57	2181			6.56	177.85	300	SC
210	8 24 0	3.82	-159.74	2109			7.42	177.86	300	SC
210	8 25 0	6.58	-159.92	2037	SP, STV	$\geq$7.0	8.31	177.94	300	SC
210	8 26 0	9.39	-160.09	1964	M		9.25	178.09	300	SC
210	8 27 0	12.26	-160.26	1891	SP, STV, RSP	$\geq$9.0	10.26	178.32	300	SSC
210	8 28 0	15.17	-160.43	1818	SP, STV, RSP, ET(4.2)	$\geq$9.0	11.39	178.65	300	SCC
210	8 29 0	18.13	-160.59	1744	SM, RSP	$\geq$10.0	12.66	179.09	300	SSC
210	8 30 0	21.15	-160.75	1671			14.13	179.65	300	SC
210	8 31 0	24.22	-160.90	1597			15.86	-179.67	300	SC
210	8 32 0	27.35	-161.05	1525			17.90	-178.85	300	

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 29 JULY 1978 DAY 210

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
210	10 15 0	-30.05	171.10	3140			-7.50	168.75	300	
210	10 16 0	-35.87	170.94	3095			-5.73	168.65	300	SSC
210	10 17 0	-33.67	170.78	3049			-4.12	168.56	300	SSC
210	10 18 0	-31.45	170.61	3000			-2.66	168.48	300	SSC
210	10 19 0	-29.20	170.44	2949			-1.36	168.40	300	SSC
210	10 20 0	-26.92	170.27	2896			-0.20	168.33	300	SSC
210	10 21 0	-24.62	170.10	2841	SM, ME	>4.0	0.83	168.26	300	SC
210	10 22 0	-22.29	169.92	2784	SM, ME	≥4.0	1.75	168.20	300	SC
210	10 23 0	-19.93	169.75	2725	SM, ME	>4.0	2.57	168.15	300	SC
210	10 24 0	-17.53	169.57	2665	SM, WSP, ME, ET(5)	>6.0	3.31	168.10	300	SC
210	10 25 0	-15.10	169.39	2602	SP, STV, RSP, ET(3)	≥5.0	3.98	168.06	300	SC
210	10 26 0	-12.64	169.21	2538	SP, STV, ME, ET(2)	>6.0	4.59	168.01	300	WS
210	10 27 0	-10.14	169.03	2473	SP, STV, RSP, ET(1.7)	≥4.0	5.16	167.97	300	Q
210	10 28 0	-7.61	168.85	2406	SP, STV, RSP, ET(1.5)	≥6.0	5.69	167.94	300	Q
210	10 29 0	-5.03	168.67	2338	SP, STV, ET(1.4)	≥6.5	6.20	167.90	300	Q
210	10 30 0	-2.41	168.49	2269	SP, STV, ET	≥6.0	6.69	167.87	300	Q
210	10 31 0	0.25	168.31	2199	SP, STV, RSP	≥6.0	7.17	167.84	300	Q
210	10 32 0	2.96	168.14	2127	VSP, STV, RSP, ET(3.2)	≥5.0	7.66	167.80	300	Q
210	10 33 0	5.71	167.96	2055	VSP, STV, RSP, ET(3.1)	>8.0	8.15	167.77	300	Q
210	10 34 0	8.51	167.79	1983	SP, STV, RSP	≥7.0	8.67	167.74	300	Q
210	10 35 0	11.36	167.62	1909	VSP, STV, RSP, ET(2.3)	≥9.0	9.23	167.71	300	Q
210	10 36 0	14.26	167.45	1836	SP, STV, RSP, ET(2.9)	≥10.0	9.85	167.67	300	Q
210	10 37 0	17.21	167.28	1762	VSP, STV, RSP, ET(3.5)	≥10.0	10.55	167.64	300	Q
210	10 38 0	20.22	167.13	1689	SP, STV, ET(6.5)	≥10.0	11.38	167.60	300	WS
210	10 39 0	23.28	166.97	1616	SM	>10.0	12.37	167.55	300	WS
210	10 40 0	26.39	166.82	1543	SM	>10.0	13.61	167.50	300	SSC
210	10 41 0	29.56	166.68	1471	SM	9.2	15.21	167.43	300	WS
210	10 42 0	32.79	166.55	1400			17.29	167.35	300	Q
210	10 43 0	36.07	166.43	1330			20.00	167.26	300	Q
210	10 44 0	39.41	166.33	1262			23.41	167.15	300	Q

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 29 JULY 1978 DAY 210

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
210	21	53	0	34.59	176.21	839			24.48	172.46	300	
210	21	54	0	30.83	176.11	889	SM, ER	10.0	20.53	171.86	300	Q
210	21	55	0	27.12	175.99	942	SM, ER	10.0	17.27	171.31	300	Q
210	21	56	0	23.47	175.86	998	SM, ER	10.0	14.72	170.86	300	Q
210	21	57	0	19.87	175.72	1058	SM, ER	9.4	12.76	170.50	300	Q
210	21	58	0	16.33	175.58	1119	SM, ER	9.5	11.23	170.23	300	Q
210	21	59	0	12.85	175.43	1184	SM, ER	9.0	9.98	170.02	300	Q
210	22	0	0	9.42	175.27	1250	SM, ER	8.5	8.93	169.87	300	Q
210	22	1	0	6.05	175.12	1318	SM, ER	8.8	8.00	169.75	300	Q
210	22	2	0	2.75	174.96	1387	SM, ER	10.1	7.13	169.66	300	Q
210	22	3	0	-0.50	174.79	1458	SM, ER	11.0	6.30	169.59	300	Q
210	22	4	0	-3.69	174.63	1530	SM	>10.0	5.47	169.54	300	Q
210	22	5	0	-6.82	174.46	1602	SM, ER	10.9	4.62	169.51	300	Q
210	22	6	0	-9.89	174.30	1675	SM	~11.0	3.71	169.49	300	Q
210	22	7	0	-12.91	174.13	1748	SM, ER	10.5	2.74	169.48	300	Q
210	22	8	0	-15.87	173.97	1822	SM, ER	11.0	1.67	169.49	300	Q
210	22	9	0	-18.77	173.81	1895	SM	>8.0	0.49	169.50	300	Q
210	22	10	0	-21.63	173.64	1968	SM, ME	~9.0	-0.82	169.52	300	WS
210	22	11	0	-24.43	173.48	2041	SM, ME	>8.0	-2.29	169.55	300	Q
210	22	12	0	-27.19	173.32	2113	SM, ME	~8.5	-3.92	169.58	300	Q
210	22	13	0	-29.89	173.17	2184	SM, ME	>6.0	-5.72	169.61	300	
210	22	14	0	-32.56	173.02	2255			-7.67	169.64	300	

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 30 JULY 1970 DAY 211

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
211	9 47 0	-37.24	177.06	3083			-7.48	170.61	300	WS
211	9 48 0	-35.03	176.90	3036			-5.72	170.42	300	SC
211	9 49 0	-32.80	176.74	2987			-4.10	170.25	300	VSSC
211	9 50 0	-30.55	176.57	2935			-2.64	170.08	300	SAT
211	9 51 0	-28.27	176.40	2881			-1.33	169.93	300	SAT
211	9 52 0	-25.96	176.23	2826			-0.16	169.79	300	SAT
211	9 53 0	-23.62	176.06	2769			0.88	169.66	300	VSSC
211	9 54 0	-21.25	175.88	2709			1.81	169.54	300	VSSC
211	9 55 0	-18.85	175.70	2648			2.65	169.44	300	SSC
211	9 56 0	-16.41	175.53	2586	SM, ME	~6.0	3.40	169.35	300	SC
211	9 57 0	-13.94	175.35	2521	SM, RSP	>7.0	4.08	169.27	300	SSC
211	9 58 0	-11.43	175.17	2456	SM, ME, RSP	>7.5	4.71	169.20	300	SSC
211	9 59 0	-8.88	174.97	2388	SP(NP), STV, RSP	>9.0	5.30	169.14	300	SSC
211	10 0 0	-6.30	174.81	2320	SP, STV, RSP	>7.0	5.85	169.09	300	SSC
211	10 1 0	-3.67	174.63	2250	SP(>5), STV, RSP	>7.0	6.37	169.04	300	WS
211	10 2 0	-0.99	174.46	2180	SP, STV, RSP, ET(2.5)	>8.0	6.88	169.01	300	SC
211	10 3 0	1.73	174.28	2108	SP, STV, ET(2.5)	>7.0	7.39	168.98	300	SC
211	10 4 0	4.49	174.10	2036	VSP, STV, RSP, ET(2.4)	8.1	7.91	168.95	300	SC
211	10 5 0	7.30	173.93	1963	SP, STV, ET(2.6)	>7.5	8.44	168.94	300	SC
211	10 6 0	10.17	173.76	1890	VSP, STV, ET(2.9)	>9.0	9.01	168.93	300	Q
211	10 7 0	13.08	173.59	1817	SM, RSP	>10.0	9.63	168.93	300	Q
211	10 8 0	16.05	173.43	1743	SM	>8.0	10.33	168.95	300	Q
211	10 9 0	19.07	173.27	1670	SM	9.5	11.15	168.98	300	Q
211	10 10 0	22.14	173.11	1596	SM, ME	8.0	12.12	169.02	300	Q
211	10 11 0	25.27	172.96	1524	SM, ME	8.1	13.33	169.09	300	Q
211	10 12 0	28.46	172.82	1452	SM, ME	~7.0	14.87	169.19	300	WS
211	10 13 0	31.70	172.69	1381	SM, ME	~6.5	16.87	169.32	300	WS
211	10 14 0	35.00	172.57	1312	SM, ME	~7.0	19.47	169.49	300	Q
211	10 15 0	38.36	172.46	1244	SM	>6.0	22.78	169.69	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 31 JULY 1978 DAY 212

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
212	9 20 0	-34.15	-177.14	2973	SM, ME, ER	4.5	-6.11	172.41	300	WS
212	9 21 0	-31.89	-177.30	2921	SM, ME	4.9	-4.47	172.14	300	WS
212	9 22 0	-29.60	-177.47	2867	SM, ME	4.9	-2.98	171.89	300	WS
212	9 23 0	-27.28	-177.64	2811	SM, ME	4.7	-1.63	171.66	300	WS
212	9 24 0	-24.94	-177.81	2753	SM, ME	4.5	-0.42	171.44	300	WS
212	9 25 0	-22.56	-177.98	2693	SM, ME	>6.0	0.67	171.25	300	WS
212	9 26 0	-20.15	-178.16	2632	SM, ME	~7.0	1.65	171.07	300	WS
212	9 27 0	-17.70	-178.33	2568	SM, WSP, RSP	>6.5	2.53	170.92	300	SC
212	9 28 0	-15.22	-178.51	2504	SM, WSP, RSP, ME	>6.0	3.32	170.78	300	SC
212	9 29 0	-12.70	-178.69	2438	WSP(>5), RSP	>6.5	4.05	170.67	300	SC
212	9 30 0	-10.15	-178.87	2370	VSP, STV, RSP, ME, ET(2.7)	>5.0	4.72	170.57	300	SC
212	9 31 0	-7.55	-179.05	2301	VSP, STV, RSP, ME, ET(2.2)	>6.0	5.34	170.48	300	SC
212	9 32 0	-4.91	-179.22	2232	VSP, STV, RSP, ME, ET(1.9)	>6.0	5.93	170.42	300	SC
212	9 33 0	-2.22	-179.40	2161	VSP, STV, RSP, ET(1.8)	~7.0	6.50	170.36	300	WS
212	9 34 0	0.51	-179.58	2089	VVSP, STV, RSP, ET(2)	~6.5	7.06	170.33	300	WS
212	9 35 0	3.29	-179.75	2017	VSP, STV, RSP, ET(2)	~6.5	7.62	170.31	300	SC
212	9 36 0	6.11	-179.93	1944	VVSP, STV, RSP, ET(2.2)	>5.0	8.20	170.30	300	SC
212	9 37 0	8.99	179.90	1870	SP, STV, RSP, ET(2.4)	>6.0	8.80	170.32	300	WS
212	9 38 0	11.92	179.74	1797	SP, STV, RSP, ET(2.8)	>9.0	9.46	170.36	300	SSC
212	9 39 0	14.90	179.57	1723	SP, STV, RSP, ET(5)	>7.0	10.19	170.42	300	SSC
212	9 40 0	17.93	179.41	1650	SP(>8), STV	>10.0	11.04	170.52	300	SC
212	9 41 0	21.02	179.25	1577	SM, ME	>10.0	12.04	170.66	300	SC
212	9 42 0	24.17	179.10	1505	SM	~10.0	13.27	170.85	300	SSC
212	9 43 0	27.37	178.96	1433	SM	8.8	14.83	171.10	300	VSSC
212	9 44 0	30.63	178.83	1363	SM, ME, CE(1.5)	7.8	16.83	171.44	300	VSSC
212	9 45 0	33.95	178.70	1294	SM, ME(<2), ER	7.1	19.41	171.87	300	SC
212	9 46 0	37.32	178.59	1226	SM, ME, ER	6.5	22.66	172.38	300	Q

AD-A091 845 MISSION RESEARCH CORP SANTA BARBARA CA F/G 4/1
ISIS TOPSIDE SOUNDER DATA GATHERED ON KWAJALEIN ATOLL DURING TH--ETC(U)
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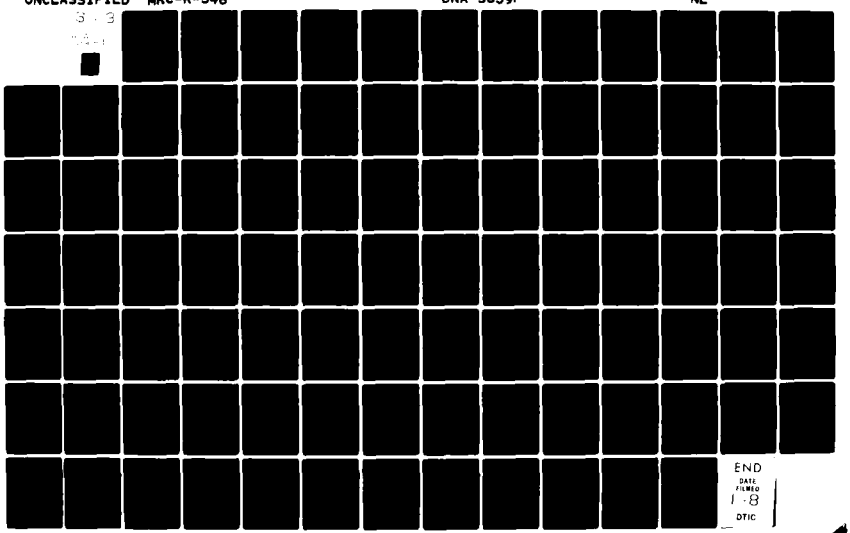
UNCLASSIFIED MRC-R-548 DNA-5339F NL



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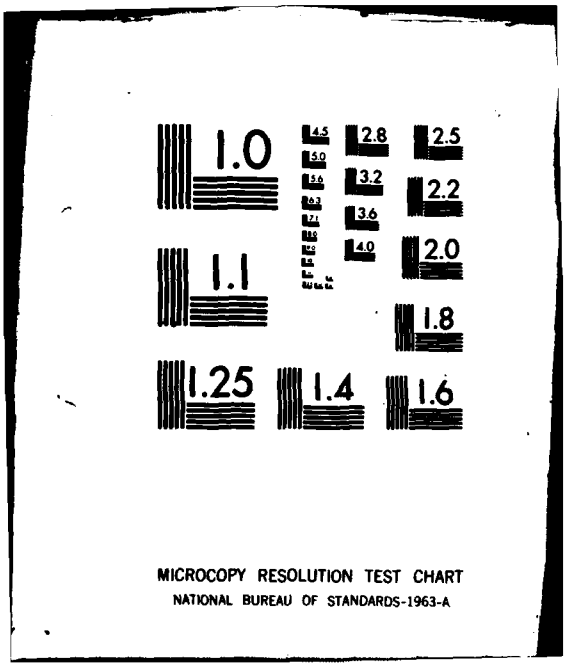
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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 31 JULY 1978 DAY 212

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
212	11 28 0	-34.88	150.73	2985			-7.05	162.27	300	WS
212	11 29 0	-32.63	150.57	2934			-5.40	162.44	300	SC
212	11 30 0	-30.35	150.41	2880			-3.89	162.61	300	SSC
212	11 31 0	-28.04	150.24	2825			-2.52	162.77	300	SAT
212	11 32 0	-25.70	150.07	2767			-1.27	162.91	300	SAT
212	11 33 0	-23.33	149.89	2708	SM, ME	~4.5	-0.14	163.04	300	SAT
212	11 34 0	-20.93	149.72	2647	SM, ME	>6.0	0.88	163.15	300	SAT
212	11 35 0	-18.49	149.54	2584	SP(>3), STV	>5.0	1.81	163.24	300	SAT
212	11 36 0	-16.02	149.37	2520	SP(NP), STV, ME	~6.0	2.65	163.31	300	SAT
212	11 37 0	-13.51	149.19	2454	SM, ME, ER	>5.0	3.43	163.36	300	SAT
212	11 38 0	-10.96	149.01	2387	SM, ME	5.8	4.15	163.40	300	SSC
212	11 39 0	-8.37	148.83	2319	SM, ME, WSP(>5)	≥8.0	4.82	163.41	300	SAT
212	11 40 0	-5.74	148.66	2249	SM, ME	≥5.0	5.47	163.40	300	SSC
212	11 41 0	-3.07	148.48	2178	SM, ME	>7.0	6.09	163.37	300	SAT
212	11 42 0	-0.35	148.30	2107	WSP, STV, RSP, ME, ET(4.4)	≥6.0	6.71	163.31	300	SC
212	11 43 0	2.42	148.13	2035	SP, STV, RSP, ME, ET(3.3)	≥5.5	7.33	163.22	300	SAT
212	11 44 0	5.23	147.95	1962	SP, STV, RSP, ME, ET(3.1)	≥6.0	7.97	163.10	300	SC
212	11 45 0	8.09	147.78	1889	SP, STV, RSP, ME, ET(3.1)	≥6.0	8.66	162.94	300	SAT
212	11 46 0	11.01	147.61	1815	SP(>5), STV, RSP, ME	≥6.0	9.40	162.73	300	SC
212	11 47 0	13.98	147.45	1742	SP(>4), STV, RSP, ME	≥6.0	10.24	162.47	300	SSC
212	11 48 0	17.00	147.28	1668	SP, STV, RSP, ME	≥7.0	11.20	162.14	300	SSC
212	11 49 0	20.07	147.13	1595	SP, STV, RSP, ME	≥6.0	12.35	161.71	300	SSC
212	11 50 0	23.21	146.97	1523	SP, ME	≥6.0	13.76	161.17	300	SC
212	11 51 0	26.39	146.83	1451	VSP, ME	≥6.0	15.50	160.50	300	SSC
212	11 52 0	29.64	146.69	1380	SM, ME	≥6.0	17.69	159.68	300	SSC
212	11 53 0	32.94	146.56	1311	SP, ME	≥7.0	20.40	158.72	300	WS

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 31 JULY 1978 DAY 212

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
212	20	57	0	29.06	-171.73	971	SM	8.4	20.31	178.43	300	Q
212	20	58	0	25.44	-171.85	1029	SM, ER	8.4	17.27	177.34	300	Q
212	20	59	0	21.87	-171.99	1090	SM, ER	~8.0	14.79	176.38	300	Q
212	21	0	0	18.36	-172.13	1153	SM, ER	8.9	12.78	175.59	300	Q
212	21	1	0	14.91	-172.28	1219	SM, ER	>7.0	11.16	174.96	300	Q
212	21	2	0	11.52	-172.43	1286	SM, ER	8.4	9.81	174.47	300	Q
212	21	3	0	8.18	-172.59	1355	SM, ER	7.3	8.65	174.10	300	Q
212	21	4	0	4.91	-172.75	1425	SM, ER	7.3	7.61	173.83	300	Q
212	21	5	0	1.69	-172.91	1496	SM, ER	7.5	6.65	173.63	300	Q
212	21	6	0	-1.47	-173.08	1568	SM, ER	8.5	5.72	173.49	300	Q
212	21	7	0	-4.56	-173.24	1641	SM	10.0	4.79	173.41	300	Q
212	21	8	0	-7.61	-173.41	1714	SM, ER	10.5	3.84	173.38	300	Q
212	21	9	0	-10.60	-173.58	1788	SM	>11.5	2.84	173.39	300	Q
212	21	10	0	-13.53	-173.74	1861	SM	≥12.5	1.78	173.43	300	Q
212	21	11	0	-16.41	-173.91	1934	SM	10.5	0.62	173.51	300	Q
212	21	12	0	-19.24	-174.08	2007	SM, ME	~10.0	-0.63	173.61	300	Q
212	21	13	0	-22.02	-174.24	2080	SM, ME, ER	8.5	-2.01	173.74	300	Q
212	21	14	0	-24.75	-174.40	2151	SM, ME	>7.0	-3.51	173.89	300	Q
212	21	15	0	-27.43	-174.56	2222	SM, ME, CE(1.3), ER	~6.0	-5.15	174.05	300	Q
212	21	16	0	-30.07	-174.72	2292	SM, ME, CE(1.2), ER	6.5	-6.93	174.22	300	

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 31 JULY 1978 DAY 212

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#212#	23 4 0	33.83	156.25	903	SM, ER	8.6	23.30	161.65	300	Q
#212#	23 5 0	30.14	156.14	958	SM, ER	8.7	19.65	162.29	300	Q
#212#	23 6 0	26.51	156.01	1015	SM, ER	9.0	16.68	162.85	300	Q
#212#	23 7 0	22.93	155.88	1075	SM, ER	9.2	14.35	163.31	300	Q
#212#	23 8 0	19.40	155.74	1137	SM	9.5	12.54	163.66	300	Q
#212#	23 9 0	15.94	155.59	1202	SM, ER	9.6	11.10	163.91	300	Q
#212#	23 10 0	12.53	155.44	1269	SM	9.1	9.91	164.08	300	Q
#212#	23 11 0	9.18	155.29	1337	SM, ER	9.5	8.89	164.20	300	Q
#212#	23 12 0	5.89	155.13	1407	SM	10.2	7.97	164.26	300	Q
#212#	23 13 0	2.66	154.96	1478	SM, ER	10.5	7.11	164.29	300	Q
#212#	23 14 0	-0.51	154.80	1550	SM	11.0	6.28	164.27	300	Q
#212#	23 15 0	-3.62	154.63	1623	SM, ER	10.8	5.44	164.23	300	Q
#212#	23 16 0	-6.68	154.47	1696	SM, ER	9.5	4.58	164.15	300	Q
#212#	23 17 0	-9.68	154.30	1769	SM	10.2	3.67	164.05	300	Q
#212#	23 18 0	-12.63	154.13	1843	SM, ER	11.0	2.68	163.92	300	Q
#212#	23 19 0	-15.52	153.97	1916	SM	>10.0	1.61	163.76	300	Q
#212#	23 20 0	-18.36	153.80	1989	SM, ER	~10.0	0.42	163.58	300	Q
#212#	23 21 0	-21.16	153.63	2062	SM, ME(<2)	~9.5	-0.90	163.36	300	Q
#212#	23 22 0	-23.90	153.47	2134	SM	~9.8	-2.35	163.13	300	Q
#212#	23 23 0	-26.59	153.31	2205	SM, ME(<2)	7.8	-3.96	162.88	300	Q
#212#	23 24 0	-29.24	153.15	2275	SM, ME(<2)	7.0	-5.72	162.61	300	Q
#212#	23 25 0	-31.85	153.00	2344	SM, ME	7.0	-7.63	162.33	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 1 AUGUST 1970 DAY 213

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#213#	8 52 0	-33.21	-171.18	2906			-6.92	174.77	300	
#213#	8 53 0	-30.92	-171.34	2852			-5.24	174.43	300	
#213#	8 54 0	-28.59	-171.51	2795			-3.69	174.10	300	
#213#	8 55 0	-26.24	-171.68	2737	SM, ME	~4.5	-2.28	173.79	300	SC
#213#	8 56 0	-23.86	-171.85	2676	SM, ME, ER	4.8	-0.99	173.49	300	SC
#213#	8 57 0	-21.44	-172.02	2615	SM, ME, WSP	≥7.0	0.18	173.23	300	SC
#213#	8 58 0	-18.98	-172.20	2551	SM, ME, WSP	≥5.0	1.24	172.98	300	SC
#213#	8 59 0	-16.49	-172.37	2486	SP, STV, ME	≥6.0	2.19	172.77	300	SC
#213#	9 0 0	-13.96	-172.55	2419	SP, STV, ME	≥10.0	3.06	172.58	300	SC
#213#	9 1 0	-11.40	-172.73	2352	SP, STV, ME, CE(1.2)	≥8.0	3.86	172.42	300	SC
#213#	9 2 0	-8.79	-172.90	2283	SP, STV, ME, RSP	≥5.0	4.60	172.29	300	SSC
#213#	9 3 0	-6.13	-173.08	2212	SP, STV, RSP	≥8.0	5.30	172.19	300	SSC
#213#	9 4 0	-3.44	-173.26	2141	SM, RSP	≥5.0	5.97	172.11	300	SSC
#213#	9 5 0	-0.69	-173.43	2069	SM, RSP	≥7.5	6.61	172.05	300	SSC
#213#	9 6 0	2.10	-173.61	1997	SM, RSP	≥6.0	7.25	172.03	300	VSSC
#213#	9 7 0	4.94	-173.78	1924	SM, RSP	~7.5	7.90	172.03	300	VSSC
#213#	9 8 0	7.83	-173.95	1850	SM, RSP	>5.0	8.58	172.07	300	VSSC
#213#	9 9 0	10.77	-174.12	1777	SM, RSP	>9.0	9.31	172.14	300	VSSC
#213#	9 10 0	13.77	-174.29	1703	SM, RSP, ME	≥7.0	10.11	172.26	300	VSSC
#213#	9 11 0	16.82	-174.45	1630	SM, RSP, ME	~9.5	11.03	172.44	300	VSSC
#213#	9 12 0	19.92	-174.60	1557	WSP, RSP, ER	9.0	12.12	172.69	300	SC
#213#	9 13 0	23.08	-174.76	1485	SP, ME, ER	8.5	13.44	173.02	300	WS
#213#	9 14 0	26.30	-174.90	1414	WSP, ME, ER	7.5	15.09	173.46	300	Q
#213#	9 15 0	29.58	-175.04	1344	SM, ME, ER	7.7	17.17	174.02	300	Q
#213#	9 16 0	32.91	-175.16	1275	SM, ME	7.2	19.80	174.70	300	Q
#213#	9 17 0	36.30	-175.28	1208	SM, ME, ER	8.0	23.02	175.48	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 1 AUGUST 1978 DAY 213

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#213#	10	59	0	-36.21	156.86	2972	SP, ME	4.8	-7.31	164.31	300	Q
#213#	11	0	0	-33.95	156.70	2919	SM, ME	>4.0	-5.59	164.41	300	WS
#213#	11	1	0	-31.67	156.53	2865	SM, ME, ER	4.5	-4.01	164.51	300	SC
#213#	11	2	0	-29.35	156.37	2809	SM, ME	~5.0	-2.58	164.61	300	SC
#213#	11	3	0	-27.00	156.20	2751	SM, ME	~5.0	-1.30	164.70	300	SSC
#213#	11	4	0	-24.63	156.03	2691	SM, ME, ER	~5.0	-0.14	164.78	300	SSC
#213#	11	5	0	-22.22	155.86	2630	SM, ME, ER	>3.0	0.90	164.85	300	SSC
#213#	11	6	0	-19.77	155.68	2567	SM, ME	≥5.0	1.83	164.90	300	VSSC
#213#	11	7	0	-17.29	155.51	2502	SM, ME	≥5.0	2.67	164.95	300	VSSC
#213#	11	8	0	-14.77	155.33	2436	SM, ME, ER	≥5.0	3.44	164.98	300	VSSC
#213#	11	9	0	-12.21	155.15	2368	SM, ME	>4.0	4.14	165.00	300	SAT
#213#	11	10	0	-9.61	154.98	2300	SM, ME	~5.0	4.80	165.00	300	VSSC
#213#	11	11	0	-6.97	154.80	2230	SM, ME	>7.0	5.41	164.99	300	SSC
#213#	11	12	0	-4.29	154.62	2159	SM, ME	>6.0	6.01	164.97	300	SSC
#213#	11	13	0	-1.56	154.45	2087	SM	>3.0	6.58	164.94	300	SSC
#213#	11	14	0	1.22	154.27	2015	SM	>9.0	7.16	164.88	300	SSC
#213#	11	15	0	4.05	154.10	1942	SM	≥9.0	7.75	164.81	300	SSC
#213#	11	16	0	6.93	153.93	1869	SM	9.1	8.36	164.71	300	VSSC
#213#	11	17	0	9.86	153.76	1795	SM	>8.0	9.02	164.59	300	VSSC
#213#	11	18	0	12.84	153.59	1722	SM, ER	~7.0	9.75	164.43	300	VSSC
#213#	11	19	0	15.88	153.43	1648	SM	6.0	10.58	164.22	300	VSSC
#213#	11	20	0	18.97	153.27	1575	SM	>5.0	11.56	163.96	300	SC
#213#	11	21	0	22.12	153.12	1503	SM, ER	5.8	12.76	163.63	300	SC
#213#	11	22	0	25.32	152.97	1431	SM, ME, ER	>5.0	14.25	163.20	300	WS
#213#	11	23	0	28.58	152.83	1361	SM, ME	5.7	16.16	162.66	300	Q
#213#	11	24	0	31.90	152.70	1292	SM, ME	5.5	18.60	161.99	300	Q
#213#	11	25	0	35.28	152.58	1225	SM, ME	6.5	21.66	161.20	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 1 AUGUST 1978 DAY 213

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#213#	20 29 0	26.40	-165.71	1046	SM, ER	7.5	19.11	-178.10	300	Q
#213#	20 30 0	22.85	-165.84	1107	SM, ER	8.6	16.36	-179.30	300	Q
#213#	20 31 0	19.36	-165.98	1171	SM, ER	8.0	14.05	179.64	300	Q
#213#	20 32 0	15.92	-166.13	1237	SM, ER	8.3	12.13	178.75	300	Q
#213#	20 33 0	12.55	-166.28	1305	SM, ER	8.2	10.51	178.02	300	Q
#213#	20 34 0	9.23	-166.44	1374	SM, ER	7.7	9.12	177.44	300	Q
#213#	20 35 0	5.97	-166.60	1444	SM, ER	7.1	7.90	176.99	300	Q
#213#	20 36 0	2.77	-166.77	1516	SM, ER	7.6	6.77	176.66	300	Q
#213#	20 37 0	-0.37	-166.93	1588	SM, ER	8.6	5.71	176.42	300	Q
#213#	20 38 0	-3.45	-167.10	1661	SM, ER	9.1	4.67	176.26	300	Q
#213#	20 39 0	-6.48	-167.26	1734	SM	>9.5	3.63	176.17	300	Q
#213#	20 40 0	-9.45	-167.43	1808	SM	>10.5	2.55	176.14	300	Q
#213#	20 41 0	-12.37	-167.60	1881	SM	>10.5	1.42	176.16	300	Q
#213#	20 42 0	-15.24	-167.77	1954	SM, ER	>10.5	0.22	176.23	300	Q
#213#	20 43 0	-18.05	-167.94	2027	SM	>10.5	-1.07	176.33	300	Q
#213#	20 44 0	-20.82	-168.10	2099	SM, ER	>10.6	-2.45	176.47	300	Q
#213#	20 45 0	-23.54	-168.27	2171			-3.95	176.63	300	Q
#213#	20 46 0	-26.21	-168.43	2242			-5.55	176.81	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 1 AUGUST 1970 DAY 213

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
213	22 35 0	34.76	162.39	918	SM	9.2	23.29	165.01	300	Q
213	22 36 0	31.09	162.28	973	SM, ER	9.0	19.58	165.30	300	Q
213	22 37 0	27.47	162.16	1031	SM, ER	8.9	16.61	165.54	300	Q
213	22 38 0	23.90	162.03	1092	SM, ER	8.8	14.32	165.74	300	Q
213	22 39 0	20.40	161.89	1155	SM, ER	8.7	12.57	165.88	300	Q
213	22 40 0	16.95	161.74	1220	SM, ER	8.8	11.20	165.98	300	Q
213	22 41 0	13.56	161.59	1288	SM, ER	9.5	10.08	166.05	300	Q
213	22 42 0	10.22	161.43	1356	SM, ER	9.6	9.12	166.08	300	Q
213	22 43 0	6.95	161.27	1427	SM, ER	9.7	8.28	166.10	300	Q
213	22 44 0	3.74	161.11	1498	SM	10.0	7.49	166.09	300	Q
213	22 45 0	0.58	160.95	1570	SM	>10.0	6.74	166.07	300	Q
213	22 46 0	-2.52	160.78	1643	SM	>10.0	6.00	166.04	300	Q
213	22 47 0	-5.56	160.61	1716	SM	9.8	5.24	165.99	300	Q
213	22 48 0	-8.54	160.44	1790	SM, ER	9.4	4.44	165.92	300	Q
213	22 49 0	-11.48	160.28	1863	SM, CE(1.6)	9.5	3.59	165.85	300	Q
213	22 50 0	-14.36	160.11	1936			2.66	165.75	300	
213	22 51 0	-17.18	159.94	2009			1.64	165.64	300	
213	22 52 0	-19.96	159.77	2082			0.50	165.52	300	
213	22 53 0	-22.69	159.61	2153			-0.77	165.38	300	
213	22 54 0	-25.38	159.45	2224			-2.19	165.22	300	
213	22 55 0	-28.02	159.29	2294			-3.76	165.05	300	
213	22 56 0	-30.61	159.13	2363			-5.50	164.87	300	
213	22 57 0	-33.17	158.97	2430			-7.39	164.68	300	

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 2 AUGUST 1978 DAY 214

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#214#	10 30 0	-37.54	162.98	2957			-8.06	166.22	300	
#214#	10 31 0	-35.27	162.82	2905			-6.23	166.24	300	
#214#	10 32 0	-32.98	162.66	2850			-4.56	166.27	300	SAT
#214#	10 33 0	-30.65	162.50	2793	SM, ME	>3.0	-3.05	166.29	300	SAT
#214#	10 34 0	-28.30	162.33	2735	SM, ME	>3.0	-1.68	166.31	300	SAT
#214#	10 35 0	-25.91	162.16	2675	SM, ME	>4.0	-0.46	166.33	300	SAT
#214#	10 36 0	-23.49	161.99	2613	SM, ME, ER	~5.0	0.63	166.35	300	VSSC
#214#	10 37 0	-21.04	161.82	2549	SM, ME	5.5	1.60	166.36	300	VSSC
#214#	10 38 0	-18.55	161.65	2484	SM, ME, CE(1.6)	~5.0	2.47	166.37	300	VSSC
#214#	10 39 0	-16.02	161.47	2417	SM, ME	~6.0	3.26	166.37	300	VSSC
#214#	10 40 0	-13.45	161.29	2350	SM, ME	>5.0	3.98	166.37	300	VSSC
#214#	10 41 0	-10.84	161.12	2280	SM, ME, CE(1.4)	>7.0	4.64	166.36	300	VSSC
#214#	10 42 0	-8.19	160.94	2210	SM, ME, WSP, ET(4)	≥5.0	5.26	166.34	300	VSSC
#214#	10 43 0	-5.49	160.77	2139	SP(>5), ME	>6.0	5.85	166.32	300	SSC
#214#	10 44 0	-2.74	160.59	2067	VSP, STV, RSP, ET(2.3)	≥5.0	6.41	166.29	300	SSC
#214#	10 45 0	0.05	160.42	1995	VSP, STV, RSP, ME, ET(1.8)	≥7.0	6.97	166.25	300	VSSC
#214#	10 46 0	2.89	160.24	1922	VVSP, STV, RSP, ET(2.1)	≥6.0	7.53	166.20	300	VSSC
#214#	10 47 0	5.78	160.07	1848	VVSP, STV, RSP, ET(1.5)	≥7.0	8.11	166.14	300	VSSC
#214#	10 48 0	8.73	159.90	1775	VSP, STV, RSP, ET(1.6)	≥6.0	8.73	166.07	300	VSSC
#214#	10 49 0	11.72	159.74	1701	VVSP, STV, RSP, ET(1.7)	≥7.0	9.40	165.97	300	VSSC
#214#	10 50 0	14.78	159.57	1628	VSP, STV, RSP, ET(2.6)	≥7.5	10.15	165.86	300	VSSC
#214#	10 51 0	17.88	159.41	1555	VSP, STV, ET(3.2)	≥9.0	11.03	165.71	300	VSSC
#214#	10 52 0	21.05	159.26	1483	SM, ME	≥9.0	12.09	165.53	300	VSSC
#214#	10 53 0	24.27	159.11	1412	SM, ME	>8.0	13.41	165.30	300	VSSC
#214#	10 54 0	27.55	158.97	1342	SM, ME	8.7	15.10	164.99	300	VSSC
#214#	10 55 0	30.88	158.84	1273	SM, ME	9.0	17.31	164.60	300	VSSC
#214#	10 56 0	34.28	158.72	1206	SM, ME	>6.0	20.15	164.13	300	VSSC
#214#	10 57 0	37.73	158.61	1141			23.69	163.58	300	SC

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 3 AUGUST 1978 DAY 215

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#215#	10	2	0	-36.57	168.94	2889	SM, ME, ER	5.8	-7.38	168.11	300	Q
#215#	10	3	0	-34.27	168.79	2834	SM, ME	5.5	-5.58	168.05	300	Q
#215#	10	4	0	-31.94	168.63	2777	SM, ME, ER	6.1	-3.95	167.98	300	Q
#215#	10	5	0	-29.58	168.46	2718	SM, ME, ER	5.5	-2.47	167.93	300	Q
#215#	10	6	0	-27.18	168.30	2657	SM, ME, ER	≥5.0	-1.14	167.88	300	Q
#215#	10	7	0	-24.76	168.13	2595	SM, ME, ER	5.5	0.04	167.83	300	Q
#215#	10	8	0	-22.29	167.96	2531	SM, ME, ER	5.0	1.10	167.78	300	Q
#215#	10	9	0	-19.79	167.78	2465	SM, ME, ER	5.5	2.04	167.74	300	Q
#215#	10	10	0	-17.25	167.61	2398	SM, ME, ER	5.0	2.88	167.70	300	Q
#215#	10	11	0	-14.67	167.44	2330	SM, ME, ER	9.5	3.65	167.67	300	Q
#215#	10	12	0	-12.05	167.26	2261	SM, ME, ER	~11.5	4.34	167.63	300	Q
#215#	10	13	0	-9.39	167.09	2190	SM, ME	>11.0	4.99	167.60	300	Q
#215#	10	14	0	-6.68	166.91	2119	SM	>6.0	5.60	167.56	300	Q
#215#	10	15	0	-3.92	166.74	2047	SM	>10.0	6.18	167.53	300	Q
#215#	10	16	0	-1.11	166.56	1974	SM	10.9	6.74	167.49	300	Q
#215#	10	17	0	1.74	166.39	1901	SM	9.4	7.31	167.46	300	Q
#215#	10	18	0	4.65	166.22	1828	SM	>8.0	7.88	167.42	300	Q
#215#	10	19	0	7.61	166.05	1754	SM	>10.0	8.48	167.38	300	Q
#215#	10	20	0	10.62	165.88	1681	SM	>10.0	9.13	167.33	300	Q
#215#	10	21	0	13.69	165.72	1608	SM	>10.0	9.85	167.28	300	Q
#215#	10	22	0	16.81	165.56	1535	SM	>10.0	10.68	167.22	300	Q
#215#	10	23	0	20.00	165.40	1463	SM	>8.0	11.66	167.15	300	Q
#215#	10	24	0	23.23	165.26	1392	SM	>8.5	12.88	167.06	300	Q
#215#	10	25	0	26.53	165.11	1323	SM, ME	6.5	14.44	166.95	300	Q
#215#	10	26	0	29.88	164.98	1254	SM, ME	6.3	16.48	166.81	300	Q
#215#	10	27	0	33.30	164.86	1188	SM, ME	6.3	19.14	166.63	300	Q
#215#	10	28	0	36.76	164.75	1124	SM, ME	6.0	22.54	166.42	300	Q

OBJECT: 3669 1515 I PASS SUMMARY FOR KWAJALEIN FOR 4 AUGUST 1978 DAY 216

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#216#	9	34	0	-35.56	174.91	2818	SM	~4.8	-7.13	170.01	300	VSSC
#216#	9	35	0	-33.22	174.75	2760	SM, ME	3.5	-5.35	169.86	300	VSSC
#216#	9	36	0	-30.85	174.59	2701	SM, ME	>2.5	-3.72	169.71	300	VSSC
#216#	9	37	0	-28.44	174.43	2640	SM, ME, ER	3.5	-2.25	169.57	300	SSC
#216#	9	38	0	-26.01	174.26	2577	SM, ME	>3.0	-0.93	169.44	300	SSC
#216#	9	39	0	-23.53	174.09	2512	SM, ME, ER	~4.0	0.25	169.33	300	SC
#216#	9	40	0	-21.02	173.92	2446	SM, ME	~4.4	1.31	169.22	300	SSC
#216#	9	41	0	-18.47	173.75	2379	SM, ME, WSP(NP)	5.5	2.25	169.13	300	SSC
#216#	9	42	0	-15.88	173.58	2311	SM, ME, WSP(>5)	>6.0	3.10	169.05	300	SSC
#216#	9	43	0	-13.25	173.40	2241	SM, ME	>5.0	3.86	168.97	300	SSC
#216#	9	44	0	-10.57	173.23	2170	SM, ME	>9.0	4.57	168.91	300	SSC
#216#	9	45	0	-7.85	173.05	2099	SM, ME, CE(1.3)	>11.0	5.23	168.85	300	SC
#216#	9	46	0	-5.08	172.88	2026	SM, WSP, RSP, ET(5.8)	>7.0	5.85	168.80	300	SC
#216#	9	47	0	-2.26	172.71	1953	SM,ME,CE(1.2),WSP,RSP,ET(5.2)	>9.0	6.45	168.76	300	SC
#216#	9	48	0	0.61	172.53	1880	SP(>5)	>6.0	7.04	168.73	300	SC
#216#	9	49	0	3.53	172.36	1807	VSP, STV, RSP, ET(4)	>9.0	7.63	168.70	300	SC
#216#	9	50	0	6.51	172.19	1733	SP(>5)	>7.0	8.24	168.68	300	SC
#216#	9	51	0	9.54	172.03	1660	VSP, STV, RSP, ET(4.6)	>9.5	8.90	168.67	300	SC
#216#	9	52	0	12.62	171.86	1587	SP, STV, ET(5)	>9.5	9.62	168.67	300	SC
#216#	9	53	0	15.76	171.70	1514	SP, STV, ET(7.5)	>11.5	10.44	168.68	300	VSSC
#216#	9	54	0	18.96	171.55	1443	SM	>9.5	11.41	168.69	300	VSSC
#216#	9	55	0	22.22	171.40	1372	SM	>9.0	12.59	168.73	300	VSSC
#216#	9	56	0	25.53	171.26	1303	SM, ME	6.8	14.10	168.79	300	SAT
#216#	9	57	0	28.90	171.12	1235	SM, ME	>5.5	16.05	168.87	300	SAT
#216#	9	58	0	32.33	171.00	1169	SM, ME, ER	6.1	18.62	168.97	300	SAT
#216#	9	59	0	35.82	170.89	1106	SM, ME, ER	5.5	21.92	169.10	300	SSC
#216#	10	0	0	39.36	170.79	1044			25.93	169.25	300	Q

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 4 AUGUST 1978 DAY 216

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#216#	11	46	0	-26.79	142.14	2592			-4.54	158.87	300	VSSC
#216#	11	47	0	-24.32	141.97	2528			-3.12	159.06	300	SAT
#216#	11	48	0	-21.82	141.80	2463			-1.81	159.23	300	VSSC
#216#	11	49	0	-19.28	141.63	2396	SM, ME	>5.0	-0.59	159.38	300	VSSC
#216#	11	50	0	-16.70	141.46	2328	SM, ME	>6.5	0.53	159.50	300	VSSC
#216#	11	51	0	-14.08	141.28	2258	SM, ME, ER	>6.0	1.58	159.59	300	SAT
#216#	11	52	0	-11.41	141.11	2188	SM, ME, ER	>7.0	2.56	159.64	300	VSSC
#216#	11	53	0	-8.70	140.93	2116	SM, ME, ER	>9.3	3.48	159.66	300	VSSC
#216#	11	54	0	-5.94	140.76	2044	SM, ME	>9.0	4.37	159.63	300	SSC
#216#	11	55	0	-3.13	140.59	1971	SM, ME	>6.0	5.24	159.55	300	SSC
#216#	11	56	0	-0.28	140.41	1898	SM, ME	>9.0	6.10	159.41	300	SC
#216#	11	57	0	2.63	140.24	1825	VSP, STV, ME, ET?(4.2)	>8.0	6.98	159.21	300	SSC
#216#	11	58	0	5.59	140.07	1751	VSP, STV, RSP, ME, CE(1.3), ET?	≥9.0	7.91	158.94	300	SSC
#216#	11	59	0	8.61	139.90	1678	VSP, STV, RSP, ME	≥6.0	8.91	158.58	300	SSC
#216#	12	0	0	11.68	139.74	1605	VVSP, STV, RSP, ME, CE(1.3), ET?	≥9.0	10.02	158.12	300	SSC
#216#	12	1	0	14.81	139.58	1532	VSP, STV, RSP, ME, ET?	≥7.0	11.29	157.53	300	SSC
#216#	12	2	0	17.99	139.42	1460	VSP, STV, RSP, ME	≥9.0	12.78	156.81	300	SC
#216#	12	3	0	21.23	139.27	1390	SP, STV, ME	≥7.0	14.55	155.94	300	SC
#216#	12	4	0	24.53	139.13	1320	SP, STV, ME, CE(1.7)	≥5.0	16.67	154.91	300	SSC
#216#	12	5	0	27.89	138.99	1252			19.21	153.74	300	VSSC

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 4 AUGUST 1978 DAY 216

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
216	21	9	0	33.85	-179.30	1022	SM	6.3	22.16	173.99	300	Q
216	21	10	0	30.29	-179.41	1082	SM, ER	7.1	18.79	173.21	300	Q
216	21	11	0	26.77	-179.54	1145	SM, CE(2.2), ER	8.3	16.10	172.54	300	Q
216	21	12	0	23.32	-179.68	1210	SM, ER	8.6	14.01	172.00	300	Q
216	21	13	0	19.92	-179.82	1277	SM, ER	8.6	12.38	171.57	300	Q
216	21	14	0	16.58	-179.97	1346	SM, ER	8.4	11.08	171.25	300	Q
216	21	15	0	13.30	179.88	1416	SM, ER	8.2	10.02	171.00	300	Q
216	21	16	0	10.08	179.72	1487	SM, ER	8.1	9.11	170.81	300	Q
216	21	17	0	6.92	179.55	1559	SM, ER	8.3	8.30	170.66	300	Q
216	21	18	0	3.81	179.39	1632	SM, ER	9.0	7.55	170.55	300	Q
216	21	19	0	0.76	179.22	1705	SM	9.6	6.84	170.47	300	Q
216	21	20	0	-2.24	179.05	1778	SM	>10.0	6.15	170.41	300	Q
216	21	21	0	-5.18	178.88	1852	SM	>10.0	5.44	170.37	300	Q
216	21	22	0	-8.07	178.71	1925	SM	>10.0	4.71	170.35	300	Q
216	21	23	0	-10.91	178.54	1998	SM, ME	>10.0	3.94	170.35	300	Q
216	21	24	0	-13.69	178.37	2071	SM, ME, CE(1.6)	8.5	3.12	170.36	300	Q
216	21	25	0	-16.43	178.20	2143	SM, ME	>7.0	2.22	170.38	300	Q
216	21	26	0	-19.13	178.03	2214	SM, ER	>5.0	1.23	170.42	300	Q
216	21	27	0	-21.77	177.86	2284	SM, ME	7.6	0.13	170.48	300	Q
216	21	28	0	-24.38	177.69	2353	SM, ME	>8.0	-1.10	170.54	300	Q
216	21	29	0	-26.94	177.53	2420	SM, ER	>8.0	-2.46	170.61	300	Q
216	21	30	0	-29.47	177.37	2487	SM	>8.0	-3.97	170.69	300	Q
216	21	31	0	-31.95	177.21	2552	SM, ER	>5.0	-5.64	170.78	300	Q
216	21	32	0	-34.40	177.05	2615	SM, ER	6.8	-7.45	170.86	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 4 AUGUST 1978 DAY 216

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
216	23	18	0	31.34	148.45	1067	SM, ER	8.1	20.87	158.37	300	Q
216	23	19	0	27.81	148.33	1129	SM, ER	8.2	17.88	159.25	300	Q
216	23	20	0	24.34	148.19	1194	SM	9.7	15.46	160.00	300	Q
216	23	21	0	20.93	148.05	1260	SM	>10.0	13.52	160.60	300	Q
216	23	22	0	17.58	147.90	1329	SM	>10.0	11.95	161.06	300	Q
216	23	23	0	14.28	147.75	1398	SM	9.5	10.66	161.41	300	Q
216	23	24	0	11.05	147.59	1469	SM	>6.0	9.55	161.65	300	Q
216	23	25	0	7.87	147.43	1541	SM	10.0	8.57	161.81	300	Q
216	23	26	0	4.75	147.27	1614	SM	>10.0	7.68	161.91	300	Q
216	23	27	0	1.68	147.10	1687	SM	>10.0	6.82	161.94	300	Q
216	23	28	0	-1.33	146.93	1760	SM	>10.0	5.98	161.93	300	Q
216	23	29	0	-4.28	146.76	1834	SM	>10.0	5.13	161.86	300	Q
216	23	30	0	-7.18	146.59	1907	SM	>10.0	4.25	161.76	300	Q
216	23	31	0	-10.03	146.42	1980	SM	>10.0	3.32	161.62	300	Q
216	23	32	0	-12.83	146.25	2053	SM	>10.0	2.33	161.43	300	Q
216	23	33	0	-15.58	146.08	2125	SM	>10.0	1.25	161.21	300	Q
216	23	34	0	-18.29	145.91	2196	SM, ME	6.8	0.07	160.96	300	Q
216	23	35	0	-20.95	145.74	2267	SM, ME	>5.0	-1.22	160.67	300	Q
216	23	36	0	-23.56	145.57	2336	SM, ME	~8.0	-2.63	160.36	300	Q
216	23	37	0	-26.14	145.40	2404	SM, ME	>8.0	-4.17	160.02	300	Q
216	23	38	0	-28.67	145.24	2471	SM	>5.0	-5.84	159.67	300	Q

OBJECT: 3660 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 5 AUGUST 1970 DAY 217

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#217#	9 6 0	-34.48	-179.12	2743			-7.31	172.09	300	
#217#	9 7 0	-32.10	-179.28	2683			-5.52	171.84	300	SC
#217#	9 8 0	-29.69	-179.44	2621			-3.87	171.61	300	SC
#217#	9 9 0	-27.24	-179.60	2558			-2.38	171.39	300	VSSC
#217#	9 10 0	-24.76	-179.77	2493			-1.03	171.18	300	VSSC
#217#	9 11 0	-22.24	-179.94	2427	SM, WSP(>5), ER	~6.2	0.18	170.99	300	VSSC
#217#	9 12 0	-19.68	179.89	2359	SM, ME	>5.0	1.27	170.82	300	SSC
#217#	9 13 0	-17.08	179.72	2290	SM, ME, WSP(>5)	>8.0	2.25	170.68	300	SSC
#217#	9 14 0	-14.43	179.55	2220	SP, STV, RSP, ME, ET(2.3)	>8.0	3.13	170.55	300	SSC
#217#	9 15 0	-11.74	179.37	2149	VSP, STV, RSP, ME, ET(1.9)	>8.0	3.94	170.44	300	SSC
#217#	9 16 0	-9.00	179.20	2078	VSP, STV, RSP, ME, ET(1.5)	>6.5	4.68	170.34	300	SC
#217#	9 17 0	-6.22	179.03	2005	VSP, STV, RSP, ME, CE(1.1), ET	>6.0	5.37	170.27	300	SC
#217#	9 18 0	-3.38	178.85	1932	VVSP, STV, RSP, ME	>7.5	6.04	170.21	300	SC
#217#	9 19 0	-0.50	178.68	1859	VSP, RSP	~6.0	6.68	170.17	300	SC
#217#	9 20 0	2.44	178.51	1785	VSP, STV	>5.0	7.33	170.15	300	SSC
#217#	9 21 0	5.43	178.34	1712	VVSP, STV, RSP	>6.0	7.99	170.14	300	SSC
#217#	9 22 0	8.47	178.17	1639	VVSP, STV, ET(2)	>5.0	8.68	170.16	300	SSC
#217#	9 23 0	11.57	178.01	1566	VVSP, STV, ET(2.2), ET(1.2)	>7.0	9.44	170.20	300	SSC
#217#	9 24 0	14.73	177.85	1494	SP, STV, ET(1.5)	>6.0	10.29	170.27	300	SSC
#217#	9 25 0	17.95	177.70	1422	VSP, STV, ET(2.1)	>9.5	11.29	170.38	300	VSSC
#217#	9 26 0	21.22	177.55	1352	SM, WSP, ET(5), ER	~8.0	12.51	170.54	300	SAT
#217#	9 27 0	24.55	177.40	1283	SM	>5.5	14.03	170.76	300	SAT
#217#	9 28 0	27.94	177.27	1216	SM, ME, CE(1.8), ER	~6.5	16.00	171.06	300	SAT
#217#	9 29 0	31.39	177.14	1151	SM, ER	5.7	18.56	171.44	300	SSC
#217#	9 30 0	34.89	177.02	1088	SM	5.3	21.81	171.90	300	WSC

OBJECT: 4669 1515 E PASS SUMMARY FOR KWAJALEIN FOR 5 AUGUST 1978 DAY 217

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#21/*	11 16 0	-30.46	148.44	2637	SM, ME	~5.5	-5.60	161.29	300	Q
#21/*	11 17 0	-28.03	148.27	2574	SM, ME, ER	5.5	-4.04	161.47	300	Q
#21/*	11 18 0	-25.55	148.11	2509	SM, ME, ER	4.3	-2.61	161.64	300	Q
#21/*	11 19 0	-23.04	147.94	2443	SM, ME, ER	~5.0	-1.30	161.79	300	Q
#21/*	11 20 0	-20.49	147.77	2376	SM, ME, ER	5.0	-0.11	161.93	300	Q
#21/*	11 21 0	-17.90	147.60	2307	SM	>2.0	0.98	162.04	300	Q
#21/*	11 22 0	-15.26	147.43	2238	SM, ME, ER	4.5	1.98	162.13	300	Q
#21/*	11 23 0	-12.58	147.25	2167	SM, ME, ER	~5.0	2.90	162.19	300	Q
#21/*	11 24 0	-9.86	147.08	2095	SM, ME	~5.0	3.75	162.22	300	Q
#21/*	11 25 0	-7.09	146.90	2023	SM, ME	>6.0	4.56	162.22	300	Q
#21/*	11 26 0	-4.26	146.73	1950	SM, ME, CE(1.7)	>9.0	5.34	162.19	300	Q
#21/*	11 27 0	-1.39	146.56	1877	SM, ME	>10.0	6.10	162.11	300	Q
#21/*	11 28 0	1.53	146.39	1804	SM, ME	10.9	6.87	162.00	300	Q
#21/*	11 29 0	4.51	146.22	1730	SM, ME	>9.0	7.66	161.84	300	Q
#21/*	11 30 0	7.54	146.05	1657	SM	9.5	8.50	161.62	300	Q
#21/*	11 31 0	10.63	145.89	1584	SM	8.5	9.42	161.32	300	Q
#21/*	11 32 0	13.77	145.73	1511	SM	>6.0	10.47	160.94	300	Q
#21/*	11 33 0	16.97	145.57	1440	SM, ER	6.3	11.70	160.46	300	Q
#21/*	11 34 0	20.23	145.42	1369	SM, ER	5.9	13.19	159.84	300	Q
#21/*	11 35 0	23.55	145.27	1300	SM, ER	7.1	15.01	159.07	300	Q
#21/*	11 36 0	26.92	145.13	1233	SM, ME	>6.0	17.28	158.13	300	Q
#21/*	11 37 0	30.36	145.00	1167	SM, ME	6.8	20.05	157.05	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 6 AUGUST 1978 DAY 218

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
218	8	39	0	-30.98	-173.31	2605	SM, ME, ER	4.5	-6.14	174.19	300	SC
218	8	40	0	-28.53	-173.47	2541	SM, ME, ER	4.5	-4.45	173.87	300	SC
218	8	41	0	-26.04	-173.63	2476	SM, ME, ER	4.9	-2.90	173.57	300	SSC
218	8	42	0	-23.51	-173.80	2409	SM, ME, ER	~5.0	-1.49	173.29	300	VSSC
218	8	43	0	-20.93	-173.97	2341	SM, WSP(NP), ER	5.5	-0.21	173.03	300	VSSC
218	8	44	0	-18.32	-174.14	2272	SM, ME, ER	5.5	0.95	172.79	300	SSC
218	8	45	0	-15.66	-174.31	2202	SM, ME, WSP(>5)	≥6.5	2.00	172.58	300	SSC
218	8	46	0	-12.96	-174.49	2131	SM, ME	≥6.0	2.96	172.41	300	SSC
218	8	47	0	-10.21	-174.66	2059	SM, ME, WSP(>5)	≥6.5	3.84	172.26	300	SSC
218	8	48	0	-7.42	-174.83	1986	VSP, STV, RSP, ME, ET(2.7)	≥11.0	4.65	172.14	300	SSC
218	8	49	0	-4.57	-175.00	1913	VSP, STV, RSP, ME, ET(2.2)	>9.0	5.43	172.05	300	SC
218	8	50	0	-1.67	-175.17	1840	VVSP, STV, RSP, ET(2.2)	≥9.0	6.17	171.99	300	SC
218	8	51	0	1.28	-175.35	1766	VSP, STV, RSP	≥9.0	6.91	171.96	300	SSC
218	8	52	0	4.28	-175.51	1693	VVSP, STV, ET(2)	>10.0	7.65	171.97	300	SSC
218	8	53	0	7.34	-175.68	1619	VSP, STV, ET(2.5)	>9.5	8.42	172.01	300	SSC
218	8	54	0	10.46	-175.84	1547	VSP, STV, ET(2.9)	>9.5	9.26	172.10	300	SSC
218	8	55	0	13.63	-176.00	1475	SP, STV, ME, ET(5.5)	>7.0	10.19	172.25	300	VSSC
218	8	56	0	16.86	-176.16	1404	SM, ME, ER	~8.5	11.28	172.46	300	VSSC
218	8	57	0	20.15	-176.31	1334	SM	6.1	12.58	172.76	300	Q
218	8	58	0	23.50	-176.46	1265	SM, ER	5.5	14.19	173.16	300	Q
218	8	59	0	26.91	-176.59	1199	SM, ME, ER	6.0	16.24	173.68	300	Q
218	9	0	0	30.37	-176.72	1134	SM, ME	5.5	18.85	174.33	300	Q
218	9	1	0	33.89	-176.84	1071	SM, ME, ER	5.7	22.08	175.09	300	Q

OBJECT: 4669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 6 AUGUST 1978 DAY 218

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#218#	10 46 0	-34.17	154.72	2682	SM, ME, ER	~5.0	-7.36	163.36	300	SC
#218#	10 47 0	-31.76	154.57	2620	SM, ME	>3.0	-5.60	163.49	300	WS
#218#	10 48 0	-29.32	154.40	2557	SM, ME	~5.0	-3.98	163.62	300	WS
#218#	10 49 0	-26.83	154.24	2492	SM, ME	5.5	-2.50	163.74	300	WS
#218#	10 50 0	-24.31	154.07	2426	SM, ME ER	≥5.0	-1.17	163.85	300	Q
#218#	10 51 0	-21.75	153.91	2358	SM, ME	~5.5	0.03	163.94	300	Q
#218#	10 52 0	-19.15	153.74	2289	SM, ME	5.7	1.12	164.02	300	Q
#218#	10 53 0	-16.50	153.57	2219	SM, ME	5.8	2.10	164.09	300	Q
#218#	10 54 0	-13.81	153.39	2148	SM, ME	>5.0	3.00	164.13	300	Q
#218#	10 55 0	-11.08	153.22	2076	SM, ME	~5.5	3.82	164.16	300	Q
#218#	10 56 0	-8.29	153.05	2004	SM, ME, ER	5.5	4.59	164.16	300	Q
#218#	10 57 0	-5.46	152.88	1931	SM, ME	9.0	5.32	164.15	300	Q
#218#	10 58 0	-2.57	152.70	1858	SM, ME	9.0	6.03	164.11	300	Q
#218#	10 59 0	0.37	152.53	1784	SM, ME	>10.0	6.73	164.04	300	Q
#218#	11 0 0	3.36	152.36	1711	SM	>10.0	7.44	163.95	300	Q
#218#	11 1 0	6.40	152.20	1637	SM	9.9	8.18	163.82	300	Q
#218#	11 2 0	9.51	152.03	1565	SM	9.5	8.99	163.64	300	Q
#218#	11 3 0	12.67	151.87	1492	SM	9.6	9.88	163.41	300	Q
#218#	11 4 0	15.88	151.71	1421	SM	≥9.5	10.93	163.11	300	Q
#218#	11 5 0	19.16	151.56	1351	SM	≥7.0	12.18	162.72	300	Q
#218#	11 6 0	22.49	151.41	1282	SM, CE(1.6), ER	6.7	13.73	162.22	300	Q
#218#	11 7 0	25.88	151.27	1215	SM, ER	6.3	15.70	161.58	300	Q
#218#	11 8 0	29.33	151.14	1150			18.20	160.79	300	Q
#218#	11 9 0	32.84	151.02	1087			21.32	159.87	300	

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 7 AUGUST 1978 DAY 219

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
219	8	12	0	-27.27	-167.50	2457			-5.40	176.73	300	
219	8	13	0	-24.73	-167.66	2390	SM, ME, CE(1.7), ER	~4.0	-3.79	176.36	300	SC
219	8	14	0	-22.14	-167.83	2322	SM, ME	>6.0	-2.29	176.02	300	SSC
219	8	15	0	-19.52	-168.00	2252	SM, ME	≥9.5	-0.91	175.69	300	SSC
219	8	16	0	-16.85	-168.17	2182	SM, ME, WSP(>5)	≥9.0	0.35	175.40	300	SSC
219	8	17	0	-14.14	-168.34	2110	SM, ME, WSP(>4)	≥9.5	1.52	175.14	300	VSSC
219	8	18	0	-11.37	-168.51	2038	SM, WSP(>5)	≥8.0	2.59	174.92	300	SSC
219	8	19	0	-8.56	-168.69	1965	SM, RSP	≥9.5	3.59	174.74	300	SSC
219	8	20	0	-5.70	-168.86	1892	SM, RSP	≥8.0	4.53	174.61	300	SSC
219	8	21	0	-2.79	-169.03	1819	SM, RSP	>7.5	5.43	174.52	300	SSC
219	8	22	0	0.18	-169.20	1745	SP, STV, RSP	~7.0	6.31	174.48	300	SC
219	8	23	0	3.20	-169.37	1672	VSP, STV, RSP, ET(2.8)	>9.0	7.19	174.50	300	WS
219	8	24	0	6.27	-169.53	1599	SP, STV, ET(3.1)	≥9.0	8.10	174.58	300	WS
219	8	25	0	9.41	-169.70	1526	VSP, STV, ET(3.9)	>10.0	9.08	174.73	300	Q
219	8	26	0	12.60	-169.86	1454	SP, STV, ET(5.9)	>9.5	10.16	174.96	300	Q
219	8	27	0	15.84	-170.01	1384	SM	11.5	11.40	175.30	300	Q
219	8	28	0	19.15	-170.17	1314	SM	>9.5	12.86	175.76	300	Q
219	8	29	0	22.52	-170.31	1246	SM, ER	~8.0	14.65	176.35	300	Q
219	8	30	0	25.94	-170.45	1180	SM, ER	7.0	16.85	177.10	300	Q
219	8	31	0	29.42	-170.58	1116	SM, ER	>5.5	19.56	177.99	300	SSC

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 7 AUGUST 1978 DAY 219

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#219#	10 17 0	-35.43	160.85	2665	SP, ME, ER	4.8	-7.89	165.43	300	VSSC
#219#	10 18 0	-33.01	160.69	2602	SP, ME	~5.0	-6.03	165.48	300	VSSC
#219#	10 19 0	-30.56	160.54	2539	SM, ME, ER	>4.0	-4.33	165.53	300	VSSC
#219#	10 20 0	-28.07	160.38	2473	SM, ME	~5.0	-2.78	165.58	300	VSSC
#219#	10 21 0	-25.53	160.21	2407	SM, ME, CE(1.8), ER	~4.8	-1.38	165.63	300	SAT
#219#	10 22 0	-22.96	160.04	2338	SM, ME	~4.8	-0.13	165.67	300	VSSC
#219#	10 23 0	-20.35	159.88	2269	SM, ME, CE(1.6), ER	4.8	0.99	165.71	300	VSSC
#219#	10 24 0	-17.69	159.71	2199	SM, ME	5.0	1.99	165.73	300	VSSC
#219#	10 25 0	-14.99	159.54	2128	SM, ME	5.0	2.90	165.75	300	VSSC
#219#	10 26 0	-12.24	159.36	2056	SM	>6.0	3.73	165.75	300	SSC
#219#	10 27 0	-9.44	159.19	1983	SM, WSP(>8.5), ME	≥9.0	4.50	165.75	300	SSC
#219#	10 28 0	-6.59	159.02	1910	SM	≥7.0	5.21	165.73	300	SSC
#219#	10 29 0	-3.69	158.85	1837	SM, RSP, ET(3.8), ME	~11.0	5.90	165.70	300	SSC
#219#	10 30 0	-0.74	158.68	1763	SM, RSP	≥9.0	6.57	165.66	300	SSC
#219#	10 31 0	2.27	158.51	1690	SM, RSP, ET(2.8), ME	≥9.0	7.24	165.60	300	SSC
#219#	10 32 0	5.33	158.34	1617	SP, STV, RSP, ET(2.8), ET(6)	~8.0	7.93	165.52	300	SSC
#219#	10 33 0	8.45	158.18	1544	WSP, RSP, ET(3)	>7.5	8.67	165.42	300	VSSC
#219#	10 34 0	11.63	158.02	1472	SP, STV, ET(4.2), ET(7)	≥9.5	9.48	165.28	300	SSC
#219#	10 35 0	14.86	157.86	1401	SM	≥9.5	10.41	165.11	300	SC
#219#	10 36 0	18.15	157.71	1331	SM	>10.0	11.52	164.89	300	WSC
#219#	10 37 0	21.50	157.56	1263	SM	8.0	12.88	164.60	300	Q
#219#	10 38 0	24.91	157.42	1196	SM	7.2	14.61	164.22	300	Q
#219#	10 39 0	28.38	157.29	1132	SM, ER	6.9	16.87	163.74	300	Q
#219#	10 40 0	31.90	157.16	1069	SM, ME(<2.5)	7.0	19.77	163.15	300	Q
#219#	10 41 0	35.48	157.05	1009	SM, ME	7.0	23.37	162.48	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 7 AUGUST 1978 DAY 219

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
219	21	50	0	37.74	166.98	1057	SM, ME	9.8	24.14	167.37	300	Q
219	21	51	0	34.20	166.87	1119	SM	9.8	20.40	167.38	300	Q
219	21	52	0	30.73	166.75	1183	SM, ME, ER	9.7	17.41	167.38	300	Q
219	21	53	0	27.31	166.63	1249	SM	9.3	15.11	167.38	300	Q
219	21	54	0	23.95	166.49	1317	SM, ER	9.0	13.36	167.37	300	Q
219	21	55	0	20.65	166.34	1387	SM, ME(<2), ER	8.9	12.00	167.36	300	Q
219	21	56	0	17.41	166.19	1458	SM, ER	8.6	10.92	167.35	300	Q
219	21	57	0	14.22	166.03	1529	SM, ER	8.7	10.02	167.33	300	Q
219	21	58	0	11.09	165.87	1602	SM	8.6	9.25	167.31	300	Q
219	21	59	0	8.02	165.71	1675	SM, ER	8.8	8.56	167.29	300	Q
219	22	0	0	5.00	165.54	1748	SM	9.6	7.93	167.26	300	Q
219	22	1	0	2.04	165.37	1822	SM	>10.0	7.32	167.24	300	Q
219	22	2	0	-0.87	165.20	1895	SM	>10.0	6.73	167.20	300	Q
219	22	3	0	-3.73	165.02	1969	SM	>10.0	6.13	167.17	300	Q
219	22	4	0	-6.54	164.85	2041	SM, CE(1.6)	>10.0	5.52	167.13	300	Q
219	22	5	0	-9.30	164.68	2114	SM, CE(1.3)	>10.0	4.88	167.08	300	Q
219	22	6	0	-12.02	164.50	2185	SM	>10.0	4.20	167.03	300	Q
219	22	7	0	-14.68	164.33	2255	SM, CE(1.3)	>10.0	3.46	166.97	300	Q
219	22	8	0	-17.31	164.16	2325	SM, ME	>10.0	2.65	166.91	300	Q
219	22	9	0	-19.89	163.98	2393	SM, ME	>10.0	1.75	166.84	300	Q
219	22	10	0	-22.43	163.81	2460	SM, ME, CE(1.7)	>10.0	0.75	166.77	300	Q
219	22	11	0	-24.94	163.64	2526	SM, ME	>10.0	-0.37	166.68	300	Q
219	22	12	0	-27.40	163.47	2590	SM, ME	9.5	-1.63	166.59	300	Q
219	22	13	0	-29.83	163.31	2653	SM, ME, ER	8.2	-3.03	166.48	300	Q
219	22	14	0	-32.23	163.15	2713	SM, ME	8.0	-4.60	166.37	300	Q
219	22	15	0	-34.59	162.99	2772	SM, ME	8.5	-6.32	166.26	300	Q
219	22	16	0	-36.92	162.84	2830	SM, ME	8.0	-8.20	166.13	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 8 AUGUST 1978 DAY 220

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#220#	7 46 0	-20.70	-161.86	2232	SM, CE(1.8)	>5.0	-3.42	179.66	300	WS
#220#	7 47 0	-18.02	-162.03	2161	SM, ME, CE(1.3)	≥8.0	-1.92	179.31	300	WS
#220#	7 48 0	-15.29	-162.20	2089	SM, ME, RSP	≥6.0	-0.52	179.00	300	WS
#220#	7 49 0	-12.52	-162.37	2017	SM, ME, RSP, ET(2.7)	~9.5	0.79	178.72	300	WS
#220#	7 50 0	-9.69	-162.54	1944	SM	≥8.0	2.02	178.50	300	SC
#220#	7 51 0	-6.82	-162.71	1871	SM, RSP	~9.8	3.19	178.32	300	SC
#220#	7 52 0	-3.89	-162.88	1797	SM, RSP, ER	~8.5	4.32	178.21	300	SC
#220#	7 53 0	-0.91	-163.05	1724	SM, ER	~8.0	5.42	178.16	300	SSC
#220#	7 54 0	2.13	-163.22	1651	SM, RSP(NP)	8.8	6.52	178.20	300	SSC
#220#	7 55 0	5.22	-163.38	1578	SM	>8.0	7.64	178.32	300	VSSC
#220#	7 56 0	8.37	-163.55	1505	SM	~10.0	8.84	178.54	300	VSSC
#220#	7 57 0	11.58	-163.71	1434	SM	>10.0	10.14	178.88	300	VSSC
#220#	7 58 0	14.84	-163.87	1364	SM	>10.0	11.61	179.34	300	VSSC
#220#	7 59 0	18.17	-164.02	1294	SM	>10.0	13.32	179.96	300	SAT
#220#	8 0 0	21.55	-164.17	1227	SM	>8.0	15.32	-179.28	300	SAT
#220#	8 1 0	24.99	-164.31	1161	SM, ER	7.8	17.71	-178.37	300	VSSC

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 8 AUGUST 1978 DAY 220

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MUZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#220#	9	49	0	-34.25	166.82	2584	SM, ME, ER	~4.9	-6.96	167.43	300	VSSC
#220#	9	50	0	-31.79	166.67	2520	SM, ME, ER	5.0	-5.14	167.40	300	SSC
#220#	9	51	0	-29.28	166.51	2454	SM, ME, ER	5.0	-3.48	167.37	300	WS
#220#	9	52	0	-26.74	166.35	2387	SM, ME, ER	4.9	-1.99	167.34	300	SSC
#220#	9	53	0	-24.16	166.18	2318	SM, ME, ER	5.0	-0.65	167.31	300	SSC
#220#	9	54	0	-21.53	166.02	2249	SM, ME, CE(1.5)	4.3	0.55	167.28	300	SSC
#220#	9	55	0	-18.86	165.85	2178	SM, ME, ER	5.0	1.62	167.26	300	VSSC
#220#	9	56	0	-16.15	165.68	2107	SM, ME	>5.0	2.58	167.23	300	SSC
#220#	9	57	0	-13.38	165.51	2035	SM, ME	≥9.0	3.45	167.20	300	VSSC
#220#	9	58	0	-10.57	165.34	1962	SM, ME, RSP(>5)	≥8.0	4.24	167.18	300	VSSC
#220#	9	59	0	-7.71	165.17	1889	SM, RSP, ET(2.6)	≥9.0	4.98	167.15	300	VSSC
#220#	10	0	0	-4.79	165.00	1815	SM, RSP, ET(2.3g, 3.7)	≥9.0	5.68	167.11	300	VSSC
#220#	10	1	0	-1.83	164.83	1742	SP, STV, RSP, ET(2.1, 3.2, 4)	≥7.0	6.35	167.08	300	VSSC
#220#	10	2	0	1.20	164.66	1669	VSP,STV,RSP,ET(2,2.9,3.2)	~8.5	7.02	167.03	300	SSC
#220#	10	3	0	4.28	164.49	1596	VSP, STV, RSP, ET(2.9)	>6.5	7.70	166.99	300	SSC
#220#	10	4	0	7.41	164.33	1523	VSP, STV, RSP, ET(3)	≥5.0	8.41	166.93	300	VSSC
#220#	10	5	0	10.60	164.17	1451	VSP, STV, ET(3.2)	≥7.0	9.18	166.86	300	SSC
#220#	10	6	0	13.86	164.01	1381	SP, STV, ET(5)	≥7.0	10.05	166.78	300	SSC
#220#	10	7	0	17.16	163.85	1311	SP, STV, ET(7)	>10.0	11.08	166.68	300	VSSC
#220#	10	8	0	20.53	163.71	1243	SM	>10.0	12.33	166.55	300	VSSC
#220#	10	9	0	23.96	163.56	1177	SM	9.7	13.92	166.39	300	VSSC
#220#	10	10	0	27.44	163.43	1113	SM, ER	8.9	15.99	166.18	300	VSSC
#220#	10	11	0	30.99	163.31	1052	SM, ME(<2.2), ER	8.1	18.71	165.91	300	SAT
#220#	10	12	0	34.58	163.19	992	SM, ER	8.0	22.17	165.59	300	SC

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 8 AUGUST 1978 DAY 220

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#220#	21	21	0	38.65	173.11	1074	SM, ME	6.7	24.98	170.31	300	Q
#220#	21	22	0	35.13	173.01	1137	SM, ME	7.4	21.14	169.95	300	Q
#220#	21	23	0	31.68	172.90	1202	SM, ME	8.2	18.02	169.63	300	Q
#220#	21	24	0	28.28	172.77	1269	SM, ME(<2.2), CE(1.9), ER	8.0	15.60	169.37	300	Q
#220#	21	25	0	24.93	172.63	1337	SM, ER	8.0	13.76	169.16	300	Q
#220#	21	26	0	21.65	172.49	1407	SM	7.9	12.34	169.00	300	Q
#220#	21	27	0	18.42	172.34	1478	SM, ER	8.1	11.21	168.87	300	Q
#220#	21	28	0	15.25	172.18	1550	SM	8.5	10.28	168.77	300	Q
#220#	21	29	0	12.14	172.02	1623	SM	≥8.0	9.49	168.69	300	Q
#220#	21	30	0	9.09	171.85	1696	SM, ER	8.9	8.80	168.62	300	Q
#220#	21	31	0	6.08	171.69	1770	SM	9.1	8.16	168.56	300	Q
#220#	21	32	0	3.14	171.52	1843	SM	10.0	7.57	168.51	300	Q
#220#	21	33	0	0.24	171.34	1917	SM	>10.0	6.99	168.47	300	Q
#220#	21	34	0	-2.60	171.17	1990	SM, ME	>10.0	6.41	168.43	300	Q
#220#	21	35	0	-5.40	171.00	2063	SM, ME, CE(1.5)	>10.0	5.83	168.40	300	Q
#220#	21	36	0	-8.15	170.82	2134	SM, ME, CE(1.4)	>10.0	5.23	168.37	300	Q
#220#	21	37	0	-10.85	170.65	2206	SM, ME	>10.0	4.59	168.34	300	Q
#220#	21	38	0	-13.50	170.47	2276	SM, ME	>10.0	3.91	168.32	300	Q
#220#	21	39	0	-16.12	170.30	2345	SM, ME	>10.0	3.16	168.29	300	Q
#220#	21	40	0	-18.69	170.12	2413	SM, ME, ER	9.5	2.34	168.27	300	Q
#220#	21	41	0	-21.22	169.95	2480	SM, ME	≥9.0	1.43	168.25	300	Q
#220#	21	42	0	-23.71	169.78	2545	SM	≥8.0	0.42	168.23	300	Q
#220#	21	43	0	-26.16	169.61	2608	SM,	8.5	-0.72	168.21	300	Q
#220#	21	44	0	-28.58	169.44	2670	SM, ER	8.4	-2.00	168.19	300	Q
#220#	21	45	0	-30.97	169.28	2731	SM	~9.0	-3.43	168.16	300	Q
#220#	21	46	0	-33.33	169.12	2789	SM, ER	8.5	-5.01	168.14	300	Q
#220#	21	47	0	-35.65	168.96	2846	SM, ME	~7.5	-6.75	168.11	300	Q

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 9 AUGUST 1978 DAY 221

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
221	9 20 0	-35.48	172.95	2565			-8.43	169.53	300	
221	9 21 0	-33.00	172.80	2500			-6.47	169.40	300	
221	9 22 0	-30.49	172.64	2434	SM, ME, ER	~5.0	-4.67	169.27	300	Q
221	9 23 0	-27.93	172.48	2367	SM, ME, ER	~5.0	-3.04	169.15	300	Q
221	9 24 0	-25.34	172.32	2298	SM, ME, ER	~5.2	-1.56	169.04	300	Q
221	9 25 0	-22.70	172.16	2228	SM, ME, ER	~5.0	-0.24	168.94	300	Q
221	9 26 0	-20.02	171.99	2157	SM, ME, ER	~5.0	0.94	168.85	300	Q
221	9 27 0	17.29	171.82	2086	SM, ME, ER	~5.0	1.99	168.77	300	Q
221	9 28 0	-14.51	171.65	2013	SM, ME	>9.5	2.94	168.69	300	Q
221	9 29 0	-11.69	171.48	1941	SM, ME	~11.0	3.81	168.63	300	Q
221	9 30 0	-8.81	171.31	1867	SM, ME, RSP, ET(5.3), CE(1.5)	>10.0	4.60	168.57	300	Q
221	9 31 0	5.88	171.14	1794	SM, ME, RSP, ET(3.8)	>9.0	5.34	168.52	300	SC
221	9 32 0	-2.90	170.97	1720	SP,ME,RSP,ET(3.1,5.2),CE(1.3)	>9.5	6.05	168.48	300	WS
221	9 33 0	0.14	170.81	1647	VSP, STV, RSP, ET(2.9, 4.3)	9.5	6.74	168.44	300	WS
221	9 34 0	3.24	170.64	1574	SM, RSP, ET(2.9, 4.8)	~9.0	7.44	168.41	300	Q
221	9 35 0	6.39	170.48	1502	SM, RSP, ET(3, 4.2)	8.6	8.16	168.38	300	Q
221	9 36 0	9.60	170.31	1431	SM, RSP, ET(4, 5.8)	9.1	8.93	168.36	300	VSSC
221	9 37 0	12.87	170.16	1360	SM	>7.0	9.80	168.35	300	VSSC
221	9 38 0	16.20	170.00	1291	SM	>10.0	10.80	168.35	300	SAT
221	9 39 0	19.58	169.85	1224	SM	>10.0	12.01	168.35	300	WS
221	9 40 0	23.03	169.71	1158	SM, ER	9.5	13.54	168.36	300	WS
221	9 41 0	26.53	169.58	1095	SM, CE(1.8), ER	7.4	15.52	168.39	300	Q
221	9 42 0	30.09	169.45	1034	SM, ME, ER	6.9	18.13	168.43	300	Q
221	9 43 0	33.70	169.34	976	SM	6.7	21.49	168.48	300	Q
221	9 44 0	37.37	169.24	920	SM, ER	6.4	25.57	168.53	300	Q

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 10 AUGUST 1978 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#222#	8 53 0	-31.68	178.78	2414	SM, ME, ER	5.5	-6.41	171.50	300	Q
#222#	8 54 0	-29.11	178.62	2346	SM, ME, ER	>5.0	-4.61	171.28	300	Q
#222#	8 55 0	-26.51	178.46	2277	SM, ME, CE(1.8), ER	5.2	-2.97	171.07	300	Q
#222#	8 56 0	-23.86	178.30	2207	SM, ME	~5.5	-1.48	170.88	300	WS
#222#	8 57 0	-21.16	178.13	2136	SM, ME, ER	5.2	-0.14	170.70	300	Q
#222#	8 58 0	-18.42	177.96	2064	SM, ME	5.0	1.06	170.54	300	WS
#222#	8 59 0	-15.63	177.80	1992	SM, ME, CE(1.6), ER	~7.0	2.14	170.41	300	Q
#222#	9 0 0	-12.79	177.63	1919	SM	>7.0	3.11	170.29	300	Q
#222#	9 1 0	-9.90	177.46	1845	SM, RSP(>5)	~11.0	4.00	170.19	300	Q
#222#	9 2 0	-6.97	177.29	1772	SM, RSP(>5)	>7.0	4.83	170.11	300	SC
#222#	9 3 0	-3.95	177.12	1698	SM, RSP, ET(2.9)	>7.0	5.61	170.04	300	SC
#222#	9 4 0	-0.89	176.96	1625	SP, STV, RSP, ET(2.9, 5)	>7.0	6.37	170.00	300	SSC
#222#	9 5 0	2.22	176.79	1553	SP, STV, RSP, ET(2.9, 4.4)	~9.2	7.12	169.97	300	SSC
#222#	9 6 0	5.39	176.63	1481	VSP, STV, ET(4.7)	>9.2	7.89	169.97	300	SC
#222#	9 7 0	8.61	176.46	1410	VSP, STV, ET(5.5), RSP	>10.1	8.71	169.99	300	SC
#222#	9 8 0	11.90	176.31	1340	WSP, ET(8.9)	~9.5	9.61	170.04	300	WS
#222#	9 9 0	15.25	176.15	1271	SM	10.2	10.64	170.13	300	SC
#222#	9 10 0	18.65	176.00	1204	SM, ER	8.6	11.88	170.25	300	WS
#222#	9 11 0	22.11	175.86	1139	SM, ER	7.1	13.43	170.44	300	Q
#222#	9 12 0	25.63	175.72	1077	SM, ER	6.8	15.42	170.69	300	Q
#222#	9 13 0	29.21	175.59	1017	SM, ER	6.7	18.01	171.03	300	Q
#222#	9 14 0	32.84	175.48	959	SM, ER	6.9	21.32	171.42	300	Q
#222#	9 15 0	36.53	175.38	905			25.33	171.86	300	Q

OBJECT: 3669 1515 1 PASS SUMMARY FOR KWAJALEIN FOR 11 AUGUST 1978 DAY 223

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
223	8 25 0	-30.28	-175.25	2326			-6.78	173.93	300	
223	8 26 0	-27.66	-175.40	2256	SM, ME, ER	~5.0	-4.96	173.63	300	VSSC
223	8 27 0	-25.00	-175.56	2186	SM, ME, ER	~5.5	-3.28	173.34	300	VSSC
223	8 28 0	-22.29	-175.73	2114	SM, ME	>5.0	-1.74	173.06	300	SSC
223	8 29 0	-19.53	-175.89	2042	SM, ME	>9.5	-0.35	172.81	300	SSC
223	8 30 0	-16.73	-176.06	1970	SP, STV, RSP	≥7.5	0.91	172.59	300	SSC
223	8 31 0	-13.87	-176.23	1897	VSP, STV, RSP, ET(2.8)	>9.0	2.06	172.40	300	SSC
223	8 32 0	-10.96	-176.39	1823	VSP, STV, RSP, ET(1.9)	≥8.0	3.10	172.23	300	SC
223	8 33 0	-8.00	-176.56	1750	VVSP, STV, RSP, ET(1.7)	≥5.0	4.07	172.10	300	SC
223	8 34 0	-4.99	-176.73	1676	VVSP, STV, RSP, ET(1.3)	>4.0	4.97	172.01	300	SSC
223	8 35 0	-1.91	-176.90	1603	VSP, STV, RSP, ET(1.3)	>2.0	5.84	171.95	300	VSSC
223	8 36 0	1.21	-177.06	1531	VVSP, STV, RSP, ET(1.3)	>7.0	6.69	171.92	300	VSSC
223	8 37 0	4.40	-177.22	1459	VVSP, STV, ET(1.3)	≥7.0	7.55	171.94	300	VSSC
223	8 38 0	7.65	-177.39	1388	VVSP, STV, ET(1.6)	≥6.0	8.46	172.00	300	VSSC
223	8 39 0	10.95	-177.54	1319	VVSP, STV, ET(1.65)	~9.5	9.45	172.12	300	VSSC
223	8 40 0	14.32	-177.70	1251	VSP, STV, ET(2.2)	>10.0	10.58	172.30	300	VSSC
223	8 41 0	17.74	-177.85	1185	SM, RSP, ET(3.4)	>10.0	11.92	172.57	300	SAT
223	8 42 0	21.22	-177.99	1120	SM, RSP, ET(7.8)	>10.0	13.57	172.94	300	SAT
223	8 43 0	24.76	-178.13	1058	SM, ER	9.5	15.66	173.43	300	SAT
223	8 44 0	28.35	-178.26	999	SM, ER	7.2	18.32	174.05	300	WS
223	8 45 0	32.00	-178.38	942	SM, ER	~7.0	21.64	174.77	300	WS

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 11 AUGUST 1978 DAY 223

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
223	10	33	0	-31.09	152.63	2342	SM, ME	~5.5	-7.01	162.28	300	SAT
223	10	34	0	-28.48	152.47	2273	SM, ME	~5.5	-5.22	162.43	300	SAT
223	10	35	0	-25.83	152.31	2203	SM, ME	~5.0	-3.56	162.57	300	SAT
223	10	36	0	-23.13	152.15	2132	SM, ME, CE(1.7), ER	~4.2	-2.05	162.71	300	SAT
223	10	37	0	-20.39	151.98	2060	SM, ME, ER	4.5	-0.68	162.83	300	SSC
223	10	38	0	-17.60	151.82	1988	SM, ME	4.5	0.57	162.93	300	VSSC
223	10	39	0	-14.75	151.65	1914	SM, ME, ER	6.0	1.70	163.00	300	VSSC
223	10	40	0	-11.86	151.48	1841	SM, ME, ER	~6.0	2.74	163.05	300	SAT
223	10	41	0	-8.91	151.32	1768	SM	~9.5	3.71	163.07	300	VSSC
223	10	42	0	-5.91	151.15	1694	SM	>9.5	4.62	163.06	300	VSSC
223	10	43	0	-2.85	150.98	1621	SM, RSP(>4)	>8.0	5.50	163.01	300	VSSC
223	10	44	0	0.26	150.82	1549	SP, STV, RSP, ET(3.2, 6.6)	>10.0	6.36	162.92	300	VSSC
223	10	45	0	3.44	150.65	1477	SP, STV, ET(5.5)	>9.0	7.25	162.79	300	SSC
223	10	46	0	6.67	150.49	1406	VSP, STV, RSP, ET(3, 5.1)	>10.0	8.18	162.59	300	WS
223	10	47	0	9.96	150.33	1336	SP, STV, ET(5.3)	>9.5	9.19	162.33	300	Q
223	10	48	0	13.31	150.17	1267	SP, STV, ET(7.5)	>11.0	10.35	161.98	300	WS
223	10	49	0	16.72	150.02	1201	SM	>10.0	11.73	161.51	300	SSC
223	10	50	0	20.18	149.88	1136	SM, ER	~8.5	13.42	160.91	300	SSC
223	10	51	0	23.71	149.74	1073	SM, ER	7.2	15.53	160.16	300	SC
223	10	52	0	27.29	149.61	1013	SM	>6.0	18.18	159.24	300	SC
223	10	53	0	30.93	149.49	956			21.43	158.20	300	

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 11 AUGUST 1978 DAY 223

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
223	19 57 0	31.12	-168.80	1330	SM, ME, ER	7.3	19.51	177.75	300	Q
223	19 58 0	27.83	-168.94	1400	SM, ME, CE(1.9), ER	8.0	16.99	176.74	300	Q
223	19 59 0	24.60	-169.08	1471	SM, ME, CE(1.7), ER	8.1	14.93	175.89	300	Q
223	20 0 0	21.43	-169.23	1543	SM, ME, ER	8.7	13.27	175.19	300	Q
223	20 1 0	18.31	-169.38	1616	SM, ER	8.4	11.92	174.62	300	Q
223	20 2 0	15.25	-169.54	1689	SM	8.0	10.79	174.17	300	Q
223	20 3 0	12.24	-169.70	1762	SM, ER	8.3	9.84	173.82	300	Q
223	20 4 0	9.29	-169.87	1836	SM	8.0	9.00	173.54	300	Q
223	20 5 0	6.39	-170.04	1909	SM, ER	8.3	8.24	173.32	300	Q
223	20 6 0	3.54	-170.22	1982	SM, ER	8.7	7.53	173.16	300	Q
223	20 7 0	0.74	-170.39	2055	SM, ER	9.1	6.86	173.04	300	Q
223	20 8 0	-2.01	-170.57	2127	SM	>10.0	6.20	172.95	300	Q
223	20 9 0	-4.72	-170.74	2198	SM	>10.0	5.54	172.90	300	Q
223	20 10 0	-7.38	-170.92	2269	SM, ME, CE(1.5)	>10.0	4.86	172.88	300	Q
223	20 11 0	-10.00	-171.10	2338	SM, CE(1.5)	>10.0	4.16	172.89	300	Q
223	20 12 0	-12.57	-171.28	2406	SM, ME, CE(1.9)	>10.0	3.41	172.92	300	Q
223	20 13 0	-15.11	-171.45	2473	SM, ME, CE(1.7)	>10.0	2.61	172.97	300	Q
223	20 14 0	-17.61	-171.63	2538	SM, ME	9.2	1.75	173.05	300	Q
223	20 15 0	-20.07	-171.81	2602	SM, ME, CE(1.7)	>7.0	0.80	173.15	300	Q
223	20 16 0	-22.50	-171.98	2664	SM, ME, CE(1.7)	~9.5	-0.23	173.28	300	Q
223	20 17 0	-24.89	-172.15	2725	SM, ME	~8.0	-1.37	173.42	300	Q
223	20 18 0	-27.25	-172.32	2784	SM, ME	>6.0	-2.62	173.58	300	Q
223	20 19 0	-29.58	-172.49	2841	SM, ME	7.5	-3.99	173.75	300	Q
223	20 20 0	-31.88	-172.66	2896	SM, ME	7.5	-5.50	173.94	300	Q
223	20 21 0	-34.15	-172.82	2949			-7.13	174.13	300	

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 11 AUGUST 1978 DAY 223

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
223	22	3	0	38.88	159.29	1179	SM, ME, ER	7.5	24.26	163.92	300	
223	22	4	0	35.47	159.18	1245	SM, ME	>6.0	20.68	164.34	300	Q
223	22	5	0	32.11	159.06	1313	SM	8.5	17.79	164.70	300	Q
223	22	6	0	28.81	158.93	1383	SM, CE(2)	>7.0	15.54	165.00	300	Q
223	22	7	0	25.56	158.79	1453	SM, ME, ER	7.8	13.81	165.22	300	Q
223	22	8	0	22.38	158.65	1525	SM, ME, ER	7.5	12.46	165.38	300	Q
223	22	9	0	19.25	158.49	1598	SM, ME(<2)	>5.0	11.38	165.50	300	Q
223	22	10	0	16.17	158.33	1671	SM, CE(1.7)	9.0	10.49	165.59	300	Q
223	22	11	0	13.15	158.17	1744	SM, CE(1.7)	>7.0	9.72	165.64	300	Q
223	22	12	0	10.19	158.01	1818	SM, CE(1.7)	>10.0	9.05	165.67	300	Q
223	22	13	0	7.27	157.84	1891	SM	>10.0	8.43	165.69	300	Q
223	22	14	0	4.41	157.66	1965	SM	>10.0	7.86	165.68	300	Q
223	22	15	0	1.60	157.49	2037	SM	>10.0	7.30	165.67	300	Q
223	22	16	0	-1.16	157.31	2110	SM	>10.0	6.75	165.64	300	Q
223	22	17	0	-3.88	157.14	2181	SM, CE(1.6)	>10.0	6.19	165.59	300	Q
223	22	18	0	-6.55	156.96	2252	SM, ME	>10.0	5.62	165.54	300	Q
223	22	19	0	-9.18	156.78	2321	SM, ME	>7.0	5.02	165.47	300	Q
223	22	20	0	-11.77	156.60	2390	SM, ME	>10.0	4.38	165.39	300	Q
223	22	21	0	-14.31	156.43	2457	SM, ME	>10.0	3.70	165.29	300	Q
223	22	22	0	-16.82	156.25	2522	SM, ME	>7.0	2.94	165.18	300	Q
223	22	23	0	-19.29	156.07	2587	SM, ME	9.7	2.11	165.06	300	Q
223	22	24	0	-21.73	155.90	2649	SM, ME, CE(1.6)	>8.0	1.19	164.91	300	Q
223	22	25	0	-24.13	155.72	2710	SM	>5.0	0.16	164.75	300	Q
223	22	26	0	-26.50	155.55	2769	SM, ME, ER	8.5	-0.99	164.57	300	Q
223	22	27	0	-28.83	155.38	2827	SM, ME, ER	8.0	-2.28	164.38	300	Q
223	22	28	0	-31.14	155.22	2882	SM, ME, ER	7.9	-3.71	164.16	300	Q
223	22	29	0	-33.42	155.05	2936	SP, ME, ER	8.0	-5.28	163.94	300	Q
223	22	30	0	-35.67	154.89	2987	SP, ME	>7.0	-7.01	163.70	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 12 AUGUST 1978 DAY 224

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
224	7	58	0	-26.12	-169.43	2164	SP, STV, ME, RSP, ET(1.8)	>7.0	-5.69	176.55	300	
224	7	59	0	-23.40	-169.59	2092	SP, STV, ME	>5.0	-3.95	176.20	300	SSC
224	8	0	0	-20.63	-169.75	2020	VSP, STV	>9.0	-2.35	175.87	300	SC
224	8	1	0	-17.81	-169.91	1947	VSP, STV, ME, ET(2)	>8.5	-0.86	175.56	300	SSC
224	8	2	0	-14.94	-170.08	1874	VVSP, STV, ME	>9.0	0.50	175.29	300	SSC
224	8	3	0	-12.02	-170.25	1801	VVSP, STV, RSP, ME, ET(1.4)	>6.0	1.75	175.05	300	SSC
224	8	4	0	-9.04	-170.41	1727	VVSP, STV, RSP, ME, ET(1.2)	>5.0	2.92	174.86	300	SSC
224	8	5	0	-6.01	-170.58	1654	VVSP, RSP, ET(1.1)	>7.5	4.01	174.72	300	SSC
224	8	6	0	-2.92	-170.75	1581	VVSP, RSP	>7.0	5.05	174.63	300	SSC
224	8	7	0	0.23	-170.91	1509	VVSP,STV,RSP,ME,CE(1.7),ET(3.2)	>6.0	6.07	174.60	300	SSC
224	8	8	0	3.44	-171.07	1437	VVSP, STV, ME, RSP, CE	>8.0	7.09	174.64	300	SSC
224	8	9	0	6.70	-171.24	1367	VVSP, ME, RSP, CE	>6.0	8.16	174.75	300	VSSC
224	8	10	0	10.02	-171.39	1298	VVSP, ME, RSP	>7.0	9.31	174.95	300	VSSC
224	8	11	0	13.41	-171.55	1230	VVSP, STV, ME, RSP, CE(1.8)	>7.0	10.61	175.25	300	VSSC
224	8	12	0	16.85	-171.70	1165	VVSP, STV, ME, RSP	>9.0	12.13	175.68	300	SAT
224	8	13	0	20.35	-171.84	1101	VVSP, STV, RSP, ET(1.6)	>10.0	13.96	176.26	300	SAT
224	8	14	0	23.90	-171.98	1040	VVSP, STV, ET(3)	>10.0	16.22	176.98	300	SAT
224	8	15	0	27.52	-172.11	981	SM	9.0	19.00	177.85	300	SAT
224	10	4	0	-32.24	158.76	2321			-7.26	164.55	300	
224	10	5	0	-29.62	158.61	2252	SM, ME	~6.0	-5.39	164.63	300	VSSC
224	10	6	0	-26.96	158.45	2181	SM, ME	~6.0	-3.66	164.71	300	VSSC
224	10	7	0	-24.25	158.29	2110	SM, ME	6.1	-2.10	164.78	300	SSC
224	10	8	0	-21.49	158.13	2038	SM, ME	>5.0	-0.69	164.85	300	SC
224	10	9	0	-18.68	157.96	1965	SM, ME, ER	6.0	0.58	164.91	300	SC
224	10	10	0	-15.82	157.80	1892	SM, ME, CE(1.9), ER	6.1	1.72	164.95	300	SC
224	10	11	0	-12.91	157.63	1819	SM, ME	>8.0	2.76	164.97	300	SSC
224	10	12	0	-9.95	157.46	1745	SM, ME	>8.0	3.71	164.98	300	VSSC
224	10	13	0	-6.93	157.30	1672	SM, ME	>10.0	4.59	164.97	300	SSC
224	10	14	0	-3.86	157.13	1599	SM, ME, CE(1.6)	>10.0	5.43	164.94	300	VSSC
224	10	15	0	-0.72	156.97	1526	SM	>10.0	6.25	164.89	300	SC
224	10	16	0	2.47	156.80	1455	WSP(NP), RSP	~9.5	7.07	164.81	300	SC
224	10	17	0	5.72	156.64	1384	SM, RSP, ER	7.6	7.92	164.70	300	SSC
224	10	18	0	9.03	156.48	1315	SM, RSP, ER	7.6	8.84	164.54	300	SSC
224	10	19	0	12.39	156.33	1247	SM	10.4	9.87	164.34	300	VSSC
224	10	20	0	15.82	156.17	1181	SM	12.6	11.07	164.07	300	SSC
224	10	21	0	19.31	156.03	1117	SM	>11.0	12.55	163.71	300	VSSC
224	10	22	0	22.85	155.89	1055	SM, ER	9.5	14.41	163.24	300	SC
224	10	23	0	26.45	155.76	996	SM, ER	7.7	16.82	162.64	300	WS
224	10	24	0	30.10	155.63	939	SM	7.1	19.87	161.92	300	Q
224	10	25	0	33.81	155.52	886	SM, ER	7.1	23.61	161.12	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 12 AUGUST 1978 DAY 224

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
224	19 29 0	28.78	-162.79	1422			18.90	-179.14	300	
224	19 30 0	25.57	-162.93	1493	SM, ME	9.2	16.57	179.77	300	Q
224	19 31 0	22.41	-163.08	1565	SM, ME, ER	9.5	14.63	178.82	300	Q
224	19 32 0	19.32	-163.23	1638	SM, ME	9.5	13.00	178.01	300	Q
224	19 33 0	16.27	-163.39	1711	SM, ME, ER	9.5	11.64	177.34	300	Q
224	19 34 0	13.28	-163.56	1785	SM, ME, ER	8.9	10.48	176.80	300	Q
224	19 35 0	10.35	-163.72	1858	SM, ME, ER	8.5	9.46	176.37	300	Q
224	19 36 0	7.46	-163.90	1932	SM, ME, ER	8.0	8.56	176.02	300	Q
224	19 37 0	4.63	-164.07	2005	SM, ME, ER	7.8	7.73	175.75	300	Q
224	19 38 0	1.84	-164.24	2077	SP(<3), STV, ME	7.5	6.94	175.55	300	Q
224	19 39 0	-0.90	-164.42	2149	SP(<2), STV	>7.0	6.19	175.40	300	Q
224	19 40 0	-3.59	-164.60	2220	SP(<4), STV	10.5	5.44	175.30	300	Q
224	19 41 0	-6.24	-164.77	2290	SP(<3), STV	>7.0	4.68	175.25	300	Q
224	19 42 0	-8.84	-164.95	2359	SP(<5), STV	>12.0	3.91	175.24	300	Q
224	19 43 0	-11.41	-165.13	2427	SP(<7), STV	>9.0	3.10	175.26	300	Q
224	19 44 0	-13.93	-165.31	2493	SP, STV	~14.0	2.24	175.32	300	Q
224	19 45 0	-16.42	-165.49	2558	SP, STV	>9.0	1.33	175.40	300	Q
224	19 46 0	-18.87	-165.67	2621	WSP, STV	~14.0	0.34	175.52	300	Q
224	19 47 0	-21.29	-165.84	2683	WSP, ME	>10.0	-0.73	175.66	300	Q
224	19 48 0	-23.67	-166.02	2743	WSP, ME	>11.0	-1.89	175.83	300	Q
224	19 49 0	-26.02	-166.19	2801	SM	9.5	-3.14	176.02	300	Q
224	19 50 0	-28.34	-166.36	2858	SM	?	-4.51	176.23	300	Q
224	19 51 0	-30.63	-166.53	2912	SM, ER	7.7	-5.99	176.44	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 12 AUGUST 1978 DAY 224

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
224	21	34	0	39.77	165.42	1199			24.44	166.71	300	
224	21	35	0	36.37	165.32	1266			20.80	166.80	300	
224	21	36	0	33.03	165.20	1334	SM, ER	8.7	17.87	166.87	300	Q
224	21	37	0	29.75	165.08	1404	SM, ER	9.0	15.62	166.93	300	Q
224	21	38	0	26.53	164.94	1475	SM	9.9	13.89	166.98	300	Q
224	21	39	0	23.36	164.79	1547	SM, ER	10.2	12.56	167.00	300	Q
224	21	40	0	20.25	164.64	1620	SM	10.5	11.49	167.02	300	Q
224	21	41	0	17.19	164.48	1693	SM, ER	9.9	10.62	167.02	300	Q
224	21	42	0	14.19	164.32	1767	SM, ER	9.4	9.88	167.02	300	Q
224	21	43	0	11.24	164.15	1840	SM	8.5	9.23	167.01	300	Q
224	21	44	0	8.34	163.98	1914	SM, ER	9.7	8.64	167.00	300	Q
224	21	45	0	5.49	163.81	1987	SM	9.5	8.10	166.98	300	Q
224	21	46	0	2.70	163.64	2060	SM	10.0	7.57	166.95	300	Q
224	21	47	0	-0.05	163.46	2132	SM	>6.5	7.06	166.92	300	Q
224	21	48	0	-2.76	163.28	2203	SM	10.5	6.55	166.89	300	Q
224	21	49	0	-5.42	163.11	2273	SM	>10.5	6.03	166.85	300	Q
224	21	50	0	-8.03	162.93	2342	SM, ER	10.7	5.50	166.80	300	Q
224	21	51	0	-10.61	162.75	2410	SM, ER	10.3	4.93	166.75	300	Q
224	21	52	0	-13.14	162.57	2477	SM, SP(<2)	>9.0	4.32	166.70	300	Q
224	21	53	0	-15.64	162.39	2542	SM, ER	9.7	3.66	166.64	300	Q
224	21	54	0	-18.10	162.21	2606	SM, ME	>8.0	2.93	166.56	300	Q
224	21	55	0	-20.52	162.04	2668	M		2.13	166.49	300	Q
224	21	56	0	-22.91	161.86	2729	SM, ME	9.0	1.23	166.40	300	Q
224	21	57	0	-25.27	161.69	2787	SM, ME, ER	>5.0	0.23	166.30	300	Q
224	21	58	0	-27.60	161.52	2844	SM, ME	>8.5	-0.89	166.19	300	Q
224	21	59	0	-29.90	161.35	2899	SM, ME	>7.0	-2.15	166.07	300	Q
224	22	0	0	-32.17	161.18	2952	SM	>7.0	-3.56	165.94	300	Q
224	22	1	0	-34.42	161.02	3003	SM	>7.0	-5.13	165.80	300	Q
224	22	2	0	-36.64	160.86	3052	SM	>5.0	-6.85	165.65	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 13 AUGUST 1978 DAY 225

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
225	7	32	0	-18.88	-163.77	1925	SM	>8.0	-3.25	179.60	300	Q
225	7	33	0	-15.99	-163.93	1851	SM	>10.0	-1.65	179.28	300	Q
225	7	34	0	-13.05	-164.10	1778	SM, ME	>10.0	-0.15	179.01	300	Q
225	7	35	0	-10.06	-164.26	1704	SM, WSP(>5)	>9.0	1.26	178.78	300	Q
225	7	36	0	-7.01	-164.43	1631	SP, STV, ME, ET(4)	>9.5	2.60	178.61	300	Q
225	7	37	0	-3.90	-164.60	1559	SP, STV, ME, ET(5), CE(1.2)	>6.0	3.88	178.51	300	Q
225	7	38	0	-0.74	-164.76	1487	VSP, STV, ET(3)	>9.5	5.15	178.49	300	Q
225	7	39	0	2.49	-164.92	1415	VSP, STV, ET(3.2)	>9.5	6.41	178.55	300	Q
225	7	40	0	5.77	-165.08	1345	SP, STV, ET(3.5)	>5.0	7.72	178.73	300	Q
225	7	41	0	9.11	-165.24	1277	SP, STV, ET(4.7)	>9.5	9.12	179.02	300	Q
225	7	42	0	12.51	-165.40	1210	SM	>10.0	10.68	179.45	300	Q
225	7	43	0	15.97	-165.55	1145	SM	>10.0	12.46	-179.96	300	Q
225	7	44	0	19.49	-165.69	1082	SM	>10.0	14.54	-179.22	300	Q
225	7	45	0	23.07	-165.83	1022	SM, WSP(NP), CE(1.7), ER	9.5	17.01	-178.33	300	Q
225	9	35	0	-33.38	164.89	2300	SM, ME	5.8	-8.02	166.71	300	Q
225	9	36	0	-30.75	164.74	2230	SM, ME, ER	5.7	-6.04	166.70	300	Q
225	9	37	0	-28.07	164.59	2159	SM, ME, ER	5.7	-4.22	166.70	300	Q
225	9	38	0	-25.35	164.43	2088	SM, ME	~6.0	-2.56	166.69	300	Q
225	9	39	0	-22.57	164.27	2015	SM, ME, ER	5.7	-1.07	166.69	300	Q
225	9	40	0	-19.75	164.11	1942	SM, ME	6.5	0.27	166.69	300	Q
225	9	41	0	-16.88	163.94	1869	SM, ME, ER	7.5	1.46	166.68	300	Q
225	9	42	0	-13.95	163.78	1796	SM, ME	>9.0	2.54	166.66	300	Q
225	9	43	0	-10.97	163.61	1722	SM, ME	>10.0	3.51	166.65	300	Q
225	9	44	0	-7.93	163.45	1649	SP, STV, ME, CE(1.4), ET(5.5)	>10.0	4.41	166.62	300	Q
225	9	45	0	-4.84	163.28	1576	SP, STV, ET(4.9)	>10.0	5.25	166.59	300	SSC
225	9	46	0	-1.69	163.12	1504	VSP, STV, ET(3)	>5.0	6.06	166.55	300	VSSC
225	9	47	0	1.52	162.95	1433	VSP, STV, ET(2.7)	>6.0	6.87	166.50	300	SSC
225	9	48	0	4.79	162.79	1362	VSP, STV, ET(2.6)	>5.0	7.69	166.43	300	VSSC
225	9	49	0	8.11	162.63	1294	VVSP, STV, ET(2.4)	>10.0	8.56	166.35	300	SC
225	9	50	0	11.50	162.48	1226	VSP, STV, ET(2.5)	>8.0	9.52	166.24	300	SC
225	9	51	0	14.95	162.33	1161	VSP, STV, ET(3)	>10.0	10.63	166.11	300	SSC
225	9	52	0	18.45	162.18	1097	VSP, STV, ET(4.6)	>10.0	11.98	165.93	300	SSC
225	9	53	0	22.01	162.04	1036	WSP, STV, ET(9)	>10.0	13.68	165.70	300	VSSC
225	9	54	0	25.63	161.90	978	SM	>10.0	15.90	165.40	300	SAT
225	9	55	0	29.30	161.78	922	SM	>8.0	18.77	165.03	300	VSSC
225	9	56	0	33.02	161.67	870	SM	7.3	22.39	164.60	300	SSC

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 13 AUGUST 1978 DAY 225

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
225	21	5	0	40.65	171.56	1220	SM	10.0	25.11	169.43	300	Q
225	21	6	0	37.27	171.46	1287	SM	10.3	21.38	169.18	300	Q
225	21	7	0	33.95	171.35	1356	SM	10.1	18.36	168.96	300	Q
225	21	8	0	30.69	171.22	1426	SM, ER	9.7	16.02	168.78	300	Q
225	21	9	0	27.48	171.08	1498	WSP	9.4	14.22	168.64	300	Q
225	21	10	0	24.33	170.94	1570	SM, ME, ER	9.4	12.83	168.52	300	Q
225	21	11	0	21.24	170.79	1643	SM, ME, ER	9.5	11.74	168.43	300	Q
225	21	12	0	18.20	170.63	1716	SM, ME, ER	9.3	10.84	168.36	300	Q
225	21	13	0	15.21	170.47	1790	SM, ME	8.7	10.09	168.29	300	Q
225	21	14	0	12.28	170.30	1863	SM, ME	~8.5	9.43	168.24	300	Q
225	21	15	0	9.40	170.13	1937	SP, STV, ME	8.1	8.85	168.19	300	Q
225	21	16	0	6.57	169.96	2010	SP(<2.5), ME, CE(1.3)	>7.0	8.31	168.15	300	Q
225	21	17	0	3.79	169.78	2082	SM, SP(<5), ER	8.7	7.80	168.11	300	Q
225	21	18	0	1.05	169.61	2154	SP, STV	>8.0	7.30	168.08	300	Q
225	21	19	0	-1.64	169.43	2225	SM, *WSP, ER*	*10.0*	6.81	168.04	300	Q
225	21	20	0	-4.28	169.25	2295	SP(<2.5), ME	>8.0	6.32	168.01	300	Q
225	21	21	0	-6.89	169.07	2364	SM, ME	11.0	5.81	167.98	300	Q
225	21	22	0	-9.45	168.89	2431	SM, SP(<3)	>9.5	5.28	167.95	300	Q
225	21	23	0	-11.97	168.71	2498	SM, WSP, ME	~12.0	4.72	167.92	300	Q
225	21	24	0	-14.46	168.53	2562	SM, WSP	>10.0	4.11	167.89	300	Q
225	21	25	0	-16.91	168.36	2626	SM, WSP	~11.0	3.46	167.86	300	Q
225	21	26	0	-19.32	168.18	2687	SM	>10.0	2.73	167.82	300	Q
225	21	27	0	-21.70	168.00	2747	SM, ER	10.2	1.93	167.79	300	Q
225	21	28	0	-24.05	167.83	2805	SM, ME, ER	9.7	1.03	167.75	300	Q
225	21	29	0	-26.37	167.65	2862	SM	>6.0	0.02	167.71	300	Q
225	21	30	0	-28.66	167.48	2916	SM	8.5	-1.11	167.67	300	Q
225	21	31	0	-30.93	167.31	2968	SM	>6.0	-2.39	167.62	300	Q
225	21	32	0	-33.17	167.15	3018	SM	>9.0	-3.81	167.57	300	Q
225	21	33	0	-35.38	166.98	3066	SM	>7.0	-5.39	167.52	300	Q
225	21	34	0	-37.57	166.83	3112	SM	>5.0	-7.13	167.46	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 14 AUGUST 1970 DAY 226

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
226	9 7 0	-31.86	170.88	2208	SM, ME, ER	5.5	-7.22	168.86	300	Q
226	9 8 0	-29.17	170.73	2137	SM, ME, ER	5.5	-5.26	168.76	300	Q
226	9 9 0	-26.43	170.57	2065	SM, ME, ER	5.5	-3.48	168.66	300	Q
226	9 10 0	-23.64	170.41	1992	SM, ME, ER	5.5	-1.86	168.57	300	Q
226	9 11 0	-20.80	170.25	1919	SM, ME, ER	5.3	-0.41	168.48	300	Q
226	9 12 0	-17.91	170.09	1846	SM, ME, ER	5.9	0.88	168.41	300	Q
226	9 13 0	-14.97	169.93	1773	SM, ME, ER	>5.0	2.04	168.34	300	Q
226	9 14 0	-11.97	169.76	1699	SM, ME	>9.5	3.09	168.28	300	Q
226	9 15 0	-8.92	169.60	1626	SM, ME	>10.0	4.05	168.22	300	Q
226	9 16 0	-5.81	169.43	1554	SM	>11.5	4.93	168.17	300	Q
226	9 17 0	-2.64	169.27	1482	SM	11.2	5.78	168.13	300	Q
226	9 18 0	0.59	169.11	1411	SM	11.3	6.60	168.09	300	Q
226	9 19 0	3.87	168.94	1341	SM, ER	10.6	7.43	168.05	300	Q
226	9 20 0	7.22	168.79	1272	SM	10.7	8.31	168.02	300	Q
226	9 21 0	10.62	168.63	1205	SM, ER	11.0	9.26	167.98	300	Q
226	9 22 0	14.09	168.48	1141	SM	≥12.0	10.34	167.95	300	Q
226	9 23 0	17.61	168.33	1078	SM, ER	≥12.0	11.65	167.92	300	Q
226	9 24 0	21.19	168.19	1018	SM, ER	9.2	13.28	167.89	300	Q
226	9 25 0	24.83	168.06	960	SM	6.3	15.39	167.86	300	Q
226	9 26 0	28.52	167.93	906	SM, ER	6.1	18.16	167.82	300	Q
226	9 27 0	32.26	167.82	855	SM, ER	6.3	21.68	167.77	300	Q
226	9 28 0	36.05	167.72	807			25.90	167.72	300	

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 14 AUGUST 1978 DAY 226

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
226	20	37	0	38.16	177.60	1309	SM, ER	8.4	22.45	171.73	300	Q
226	20	38	0	34.86	177.49	1378	SM	8.7	19.28	171.21	300	Q
226	20	39	0	31.62	177.36	1449	SM, ER	9.0	16.77	170.77	300	Q
226	20	40	0	28.43	177.23	1520	SM, CE(1.5), ER	9.1	14.83	170.42	300	Q
226	20	41	0	25.30	177.08	1593	SM	>8.0	13.33	170.14	300	Q
226	20	42	0	22.22	176.93	1666	SM, ER	9.1	12.14	169.92	300	Q
226	20	43	0	19.20	176.78	1739	SM	9.2	11.18	169.75	300	Q
226	20	44	0	16.23	176.61	1813	SM, ER	9.5	10.38	169.61	300	Q
226	20	45	0	13.32	176.45	1887	SM, ER	9.3	9.69	169.50	300	Q
226	20	46	0	10.45	176.28	1960	SM	8.6	9.08	169.41	300	Q
226	20	47	0	7.64	176.11	2033	SM, ER	8.6	8.52	169.34	300	Q
226	20	48	0	4.87	175.93	2105	SM	8.2	8.00	169.28	300	Q
226	20	49	0	2.15	175.76	2176	SM	>7.0	7.50	169.23	300	Q
226	20	50	0	-0.53	175.58	2247	SM	9.6	7.01	169.19	300	Q
226	20	51	0	-3.16	175.40	2317	SM	>9.5	6.52	169.16	300	Q
226	20	52	0	-5.75	175.22	2385	SM	>10.0	6.02	169.13	300	Q
226	20	53	0	-8.30	175.04	2452	SM	>10.0	5.51	169.11	300	Q
226	20	54	0	-10.81	174.86	2518	SM	>10.0	4.97	169.09	300	Q
226	20	55	0	-13.28	174.68	2583	SM	>10.0	4.39	169.09	300	Q
226	20	56	0	-15.72	174.50	2645	SM	>10.0	3.76	169.08	300	Q
226	20	57	0	-18.13	174.32	2706	SM, ME, CE(1)	>10.0	3.08	169.08	300	Q
226	20	58	0	-20.50	174.14	2766	SM, ME	>10.0	2.33	169.09	300	Q
226	20	59	0	-22.84	173.96	2823	SM, ME	>7.0	1.49	169.10	300	Q
226	21	0	0	-25.15	173.79	2879	SM	>10.0	0.56	169.12	300	Q
226	21	1	0	-27.43	173.61	2933	SM, ME	>9.0	-0.49	169.14	300	Q
226	21	2	0	-29.69	173.44	2984	SM, ME	>7.0	-1.66	169.16	300	Q
226	21	3	0	-31.92	173.28	3034	SM, ME	>5.0	-2.98	169.19	300	Q
226	21	4	0	-34.13	173.11	3081	SM, ME	~7.0	-4.45	169.21	300	Q
226	21	5	0	-36.32	172.95	3126	SM	>5.0	-6.07	169.24	300	Q
226	21	6	0	-38.48	172.79	3169	SM, ME	>5.0	-7.85	169.27	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 22 JULY 1978 DAY 203

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM
#203#	7	57	0	-23.89	167.87	1373			-6.61	167.79	300
#203#	7	58	0	-20.68	167.74	1372			-3.82	167.73	300
#203#	7	59	0	-17.48	167.60	1371			-1.41	167.68	300
#203#	8	0	0	-14.27	167.46	1370			0.61	167.64	300
#203#	8	1	0	-11.06	167.32	1369			2.30	167.60	300
#203#	8	2	0	-7.85	167.17	1369	SM, ER	14.0	3.71	167.56	300
#203#	8	3	0	-4.64	167.03	1368	SM, ER	12.0	4.91	167.53	300
#203#	8	4	0	-1.43	166.88	1368	SM, ER	10.5	5.95	167.50	300
#203#	8	5	0	1.78	166.73	1367	SM, ER	8.4	6.89	167.46	300
#203#	8	6	0	4.99	166.58	1367	SM, ER	7.4	7.75	167.43	300
#203#	8	7	0	8.21	166.43	1367	SM, ER	7.4	8.58	167.40	300
#203#	8	8	0	11.42	166.29	1367	SM, ER	9.0	9.41	167.36	300
#203#	8	9	0	14.63	166.14	1367	SM	10.5	10.26	167.32	300
#203#	8	10	0	17.84	166.00	1367	SM	> 10.0	11.17	167.28	300
#203#	8	11	0	21.05	165.87	1367	SM	> 10.0	12.18	167.23	300
#203#	8	12	0	24.25	165.74	1367	SM	> 10.0	13.33	167.17	300
#203#	8	13	0	27.46	165.61	1367	SM	> 10.0	14.67	167.11	300
#203#	8	14	0	30.66	165.49	1368	SM	> 10.0	16.27	167.03	300
#203#	8	15	0	33.86	165.39	1368	SM	> 10.0	18.18	166.94	300
#203#	8	16	0	37.06	165.29	1369	SM	> 10.0	20.46	166.84	300
#203#	8	17	0	40.25	165.20	1370	SM	> 10.0	23.12	166.74	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 22 JULY 1978 DAY 203

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM
203	20	10	0	41.82	163.22	1423			24.14	165.95	300
203	20	11	0	38.67	163.14	1424	SM, ER	7.8	21.38	166.05	300
203	20	12	0	35.52	163.04	1426	SM, ME, ER	8.2	19.00	166.15	300
203	20	13	0	32.37	162.94	1427	SM, ME, ER	8.5	16.99	166.22	300
203	20	14	0	29.22	162.82	1429	SM, ME, ER	8.5	15.32	166.28	300
203	20	15	0	26.07	162.70	1430	SM, ME, CE(1.9), ER	8.2	13.91	166.33	300
203	20	16	0	22.92	162.57	1431	SM, ME, ER	8.5	12.72	166.35	300
203	20	17	0	19.76	162.44	1433	SM, ME, ER	8.7	11.69	166.36	300
203	20	18	0	16.61	162.30	1434	SM, ME, SP(NP), ER	9.2	10.77	166.36	300
203	20	19	0	13.45	162.15	1435	SP, STV, ER	9.0	9.92	166.34	300
203	20	20	0	10.30	162.01	1435	SP, STV, ER	8.5	9.12	166.31	300
203	20	21	0	7.14	161.86	1436	SP, STV, ER	8.7	8.33	166.26	300
203	20	22	0	3.99	161.71	1437	SP, STV, ER	9.0	7.52	166.20	300
203	20	23	0	0.83	161.56	1437	SP, STV, ER	9.2	6.67	166.12	300
203	20	24	0	-2.32	161.41	1437	WSP, STV, ER	9.7	5.74	166.02	300
203	20	25	0	-5.48	161.26	1437	SM, WSP(NP), SP(<2)	9.7	4.69	165.89	300
203	20	26	0	-8.63	161.11	1438	SM, ME(<2), ER	9.5	3.49	165.74	300
203	20	27	0	-11.78	160.96	1438	SM, ME, ER	9.0	2.07	165.55	300
203	20	28	0	-14.94	160.82	1437	SM, ME, ER	8.7	0.37	165.33	300
203	20	29	0	-18.09	160.67	1437	SM, ME, ER	7.5	-1.66	165.07	300
203	20	30	0	-21.24	160.54	1437	SM, ME, ER	7.0	-4.06	164.78	300
203	20	31	0	-24.39	160.40	1436	SM, ME, ER	7.0	-6.83	164.46	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 23 JULY 1978 DAY 204

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
204	6	42	0	-20.94	-174.35	1371			-6.12	176.34	300	
204	6	43	0	-17.73	-174.49	1370			-3.48	175.69	300	
204	6	44	0	-14.53	-174.63	1370			-1.15	175.07	300	
204	6	45	0	-11.32	-174.77	1369			0.87	174.52	300	Q
204	6	46	0	-8.11	-174.92	1368	SM	~10.5	2.59	174.04	300	Q
204	6	47	0	-4.90	-175.07	1368	SM	9.8	4.07	173.63	300	Q
204	6	48	0	-1.69	-175.22	1368	SM	9.0	5.36	173.31	300	Q
204	6	49	0	1.53	-175.36	1367	SM, ER	9.0	6.51	173.05	300	Q
204	6	50	0	4.74	-175.51	1367	SM, ER	9.0	7.56	172.85	300	Q
204	6	51	0	7.95	-175.66	1367	SM	9.5	8.56	172.72	300	Q
204	6	52	0	11.16	-175.81	1367	SM	10.5	9.53	172.64	300	Q
204	6	53	0	14.37	-175.95	1367	SM	>10.0	10.53	172.61	300	Q
204	6	54	0	17.58	-176.09	1367	SM	>10.0	11.59	172.63	300	Q
204	6	55	0	20.79	-176.23	1367	SM	>10.0	12.74	172.71	300	Q
204	6	56	0	24.00	-176.36	1368	SM, CE(1.7)	>10.0	14.03	172.84	300	Q
204	6	57	0	27.20	-176.48	1368	SM, ME	9.8	15.52	173.03	300	Q
204	6	58	0	30.40	-176.60	1369	SM, ME(<2.5), ER	9.1	17.26	173.27	300	Q
204	6	59	0	33.60	-176.71	1369	SM, ME(<2.5), ER	9.0	19.29	173.58	300	Q
204	7	0	0	36.80	-176.81	1370	SM, ME(<2.5), ER	8.8	21.64	173.92	300	Q
204	7	1	0	39.99	-176.89	1371	SM, ER	8.1	24.32	174.29	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 23 JULY 1978 DAY 204

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
204	8 35 0	-23.10	157.23	1372			-6.65	162.88	300	Q
204	8 36 0	-19.89	157.09	1371			-3.92	163.19	300	Q
204	8 37 0	-16.69	156.96	1370	SM, ER	9.0	-1.54	163.48	300	Q
204	8 38 0	-13.48	156.81	1369	SM, ME(<2)	>10.0	0.49	163.74	300	Q
204	8 39 0	-10.27	156.67	1369	SM, ME(<2)	>10.0	2.20	163.96	300	Q
204	8 40 0	-7.06	156.52	1368	SM, ME(<2)	>10.0	3.65	164.13	300	Q
204	8 41 0	-3.85	156.38	1368	SM	>10.0	4.90	164.26	300	Q
204	8 42 0	-0.64	156.23	1368	SM	>10.0	6.00	164.36	300	Q
204	8 43 0	2.58	156.08	1367	SM	10.5	7.00	164.42	300	Q
204	8 44 0	5.79	155.93	1367	SM	10.0	7.93	164.44	300	Q
204	8 45 0	9.00	155.78	1367	SM	10.0	8.83	164.43	300	Q
204	8 46 0	12.21	155.64	1367	SM	10.5	9.74	164.38	300	Q
204	8 47 0	15.42	155.50	1367	SM	>10.0	10.69	164.30	300	Q
204	8 48 0	18.63	155.36	1367	SM	>10.0	11.71	164.19	300	Q
204	8 49 0	21.84	155.22	1367	SM	>10.0	12.86	164.03	300	Q
204	8 50 0	25.04	155.09	1368	SM	>10.0	14.16	163.83	300	Q
204	8 51 0	28.25	154.97	1368	SM	9.4	15.69	163.57	300	Q
204	8 52 0	31.45	154.85	1369	SM, ER	9.0	17.49	163.27	300	Q
204	8 53 0	34.65	154.75	1370	SM, ER	9.0	19.61	162.92	300	Q
204	8 54 0	37.84	154.65	1370	SM, ER	8.3	22.07	162.53	300	Q
204	8 55 0	41.03	154.57	1371	SM, ER	7.8	24.87	162.13	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 23 JULY 1978 DAY 204

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
204	18	55	0	38.96	-178.96	1425			22.55	172.96	300	
204	18	56	0	35.81	-179.05	1427	SM, ME, ER	8.3	20.05	172.56	300	Q
204	18	57	0	32.66	-179.16	1428	SM, ME, ER	8.2	17.90	172.20	300	WS
204	18	58	0	29.51	-179.27	1429	SM, ME, ER	8.1	16.07	171.89	300	WS
204	18	59	0	26.36	-179.40	1431	SM, ME, CE(1.8), ER	7.9	14.53	171.63	300	Q
204	19	0	0	23.20	-179.52	1432	SM, ME, ER	7.9	13.21	171.41	300	Q
204	19	1	0	20.05	-179.66	1433	SM, ME, CE(1.7), ER	7.0	12.07	171.24	300	Q
204	19	2	0	16.90	-179.80	1434	SM, ER	6.5	11.05	171.11	300	Q
204	19	3	0	13.74	-179.94	1435	SM, ER	6.6	10.13	171.02	300	Q
204	19	4	0	10.59	179.91	1435	SM, ER	6.7	9.26	170.96	300	Q
204	19	5	0	7.43	179.76	1436	SM, CE(1.6), ER	7.0	8.40	170.93	300	Q
204	19	6	0	4.28	179.61	1437	SM, ER	7.3	7.54	170.94	300	Q
204	19	7	0	1.12	179.46	1437	SM, ER	7.7	6.64	170.97	300	Q
204	19	8	0	-2.03	179.31	1437	SM, ER	7.8	5.67	171.04	300	Q
204	19	9	0	-5.19	179.16	1437	SM, ER	8.1	4.59	171.14	300	Q
204	19	10	0	-8.34	179.01	1437	SM, ER	8.0	3.34	171.28	300	Q
204	19	11	0	-11.50	178.87	1437	SM, ME(<1.7), ER	8.4	1.89	171.46	300	Q
204	19	12	0	-14.65	178.72	1437	SM, ME, ER	8.1	0.18	171.68	300	Q
204	19	13	0	-17.80	178.58	1437	SM, ME, CE(1.8), ER	8.0	-1.86	171.94	300	Q
204	19	14	0	-20.95	178.44	1436	SM, ME, ER	7.5	-4.24	172.23	300	Q
204	19	15	0	-24.10	178.31	1435	SM, ME, ER	7.1	-6.97	172.54	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 23 JULY 1978 DAY 204

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
204	20	48	0	41.08	152.58	1424			24.74	161.37	300	
204	20	49	0	37.93	152.50	1426			22.03	161.74	300	Q
204	20	50	0	34.78	152.40	1427	SM, ME, ER	8.5	19.65	162.09	300	Q
204	20	51	0	31.63	152.30	1429	SM, ME, ER	8.3	17.60	162.39	300	Q
204	20	52	0	28.48	152.18	1430	SM, ME, ER	8.5	15.85	162.65	300	Q
204	20	53	0	25.33	152.05	1431	SM, ME, CE(1.8), ER	8.3	14.36	162.85	300	Q
204	20	54	0	22.18	151.92	1432	SM, ME, CE(1.8), ER	9.1	13.07	162.99	300	Q
204	20	55	0	19.02	151.79	1433	SM, ME(<2.5), ER	9.0	11.93	163.08	300	Q
204	20	56	0	15.87	151.65	1434	SM, WSP(<2), ER	8.5	10.91	163.12	300	Q
204	20	57	0	12.71	151.50	1435	SM, ER	8.5	9.95	163.12	300	Q
204	20	58	0	9.56	151.36	1436	SM, ER	7.7	9.03	163.07	300	Q
204	20	59	0	6.40	151.21	1436	SM, ER	8.0	8.11	162.97	300	Q
204	21	0	0	3.25	151.06	1437	SM, ER	8.5	7.16	162.81	300	Q
204	21	1	0	0.09	150.91	1437	SM, WSP(<2), ER	8.6	6.14	162.61	300	Q
204	21	2	0	-3.06	150.76	1437	SM, ER	8.0	5.02	162.34	300	Q
204	21	3	0	-6.22	150.61	1437	SM, ER	8.5	3.75	162.01	300	Q
204	21	4	0	-9.37	150.46	1437	SM, ME, CE(1.6), ER	8.1	2.27	161.60	300	Q
204	21	5	0	-12.52	150.31	1437	SM, ME, ER	8.0	0.56	161.12	300	Q
204	21	6	0	-15.68	150.17	1437	SM, ME, ER	7.8	-1.45	160.57	300	Q
204	21	7	0	-18.83	150.03	1436	SM, ME, ER	7.2	-3.78	159.96	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 24 JULY 1978 DAY 205

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#205#	7	19	0	-23.34	175.13	1371			-6.50	171.09	300	Q
#205#	7	20	0	-20.14	175.00	1371	SM, ER	7.5	-3.73	170.76	300	Q
#205#	7	21	0	-16.93	174.86	1370	SM, ME(<2), ER	~10.0	-1.34	170.46	300	Q
#205#	7	22	0	-13.72	174.72	1369	SM, ER	13.3	0.68	170.20	300	Q
#205#	7	23	0	-10.51	174.58	1369	SM, ER	~15.0	2.38	169.97	300	Q
#205#	7	24	0	-7.30	174.43	1368	SM	>10.0	3.80	169.79	300	Q
#205#	7	25	0	-4.09	174.28	1368	SM	>10.0	5.00	169.63	300	Q
#205#	7	26	0	-0.88	174.13	1368	SM	>10.0	6.06	169.51	300	Q
#205#	7	27	0	2.33	173.99	1367	SM	>10.0	7.01	169.41	300	Q
#205#	7	28	0	5.54	173.84	1367	SM	>10.0	7.89	169.33	300	Q
#205#	7	29	0	8.75	173.69	1367	SM	>10.0	8.73	169.28	300	Q
#205#	7	30	0	11.97	173.55	1367	SM	>10.0	9.58	169.24	300	Q
#205#	7	31	0	15.18	173.40	1367	SM	>10.0	10.45	169.21	300	Q
#205#	7	32	0	18.38	173.26	1368	SM	>10.0	11.39	169.20	300	Q
#205#	7	33	0	21.59	173.13	1368	SM	>10.0	12.43	169.21	300	Q
#205#	7	34	0	24.80	173.00	1369	SM	9.9	13.61	169.23	300	Q
#205#	7	35	0	28.00	172.87	1369	SM	9.7	15.00	169.28	300	Q
#205#	7	36	0	31.20	172.76	1370			16.65	169.34	300	
#205#	7	37	0	34.40	172.65	1370			18.63	169.42	300	
#205#	7	38	0	37.59	172.56	1371			20.97	169.51	300	
#205#	7	39	0	40.79	172.47	1372			23.69	169.62	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 24 JULY 1978 DAY 205

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
205	9	15	0	-15.88	146.31	1370			-2.90	157.87	300	Q
205	9	16	0	-12.67	146.17	1369			-0.71	158.37	300	Q
205	9	17	0	-9.46	146.02	1369	SM, ME(<2)	>10.0	1.21	158.82	300	Q
205	9	18	0	-6.25	145.87	1368	SM	>10.0	2.90	159.20	300	SC
205	9	19	0	-3.04	145.73	1368	SM	>10.0	4.38	159.51	300	SC
205	9	20	0	0.17	145.58	1368	SM	>10.0	5.72	159.74	300	SC
205	9	21	0	3.38	145.43	1367	SM	>10.0	6.95	159.88	300	SSC
205	9	22	0	6.59	145.28	1367	SM	>10.0	8.11	159.95	300	SSC
205	9	23	0	9.81	145.13	1367	SM	>10.0	9.25	159.95	300	SSC
205	9	24	0	13.02	144.99	1367	SM	>10.0	10.41	159.87	300	SC
205	9	25	0	16.23	144.85	1368	SM	>10.0	11.63	159.72	300	SC
205	9	26	0	19.43	144.71	1368	SM	>10.0	12.94	159.48	300	SSC
205	9	27	0	22.64	144.58	1368			14.40	159.17	300	
205	9	28	0	25.84	144.45	1369			16.04	158.78	300	
205	9	29	0	29.05	144.33	1369			17.90	158.32	300	
205	9	30	0	32.25	144.21	1370			20.01	157.79	300	
205	9	31	0	35.44	144.11	1371			22.39	157.23	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 24 JULY 1978 DAY 205

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#205#	19 32 0	41.35	170.48	1425	SM, ER	6.6	23.60	168.80	300	Q
#205#	19 33 0	38.20	170.40	1426	SM, ER	6.7	20.90	168.69	300	Q
#205#	19 34 0	35.05	170.31	1428	SM, ER	7.0	18.58	168.58	300	Q
#205#	19 35 0	31.90	170.20	1429	SM, ER	7.4	16.64	168.49	300	Q
#205#	19 36 0	28.75	170.08	1430	SM, ER	7.6	15.01	168.41	300	Q
#205#	19 37 0	25.60	169.96	1431	SM, ME, ER	8.0	13.66	168.34	300	Q
#205#	19 38 0	22.45	169.83	1433	SM, ME(<2.5), ER	8.0	12.50	168.28	300	Q
#205#	19 39 0	19.30	169.69	1433	SM, ME, CE(1.6), ER	8.0	11.50	168.23	300	Q
#205#	19 40 0	16.14	169.55	1434	SM, ME(<2), ER	8.3	10.60	168.18	300	Q
#205#	19 41 0	12.99	169.41	1435	SM, ME, SP(NP), ER	8.2	9.78	168.14	300	Q
#205#	19 42 0	9.83	169.26	1436	SP, STV, ER	8.5	8.99	168.10	300	Q
#205#	19 43 0	6.68	169.11	1436	VSP, STV, ER	8.2	8.21	168.07	300	Q
#205#	19 44 0	3.52	168.96	1437	SP, STV, ER	8.2	7.42	168.04	300	Q
#205#	19 45 0	0.37	168.81	1437	SP, STV, ER	8.5	6.58	168.01	300	Q
#205#	19 46 0	-2.79	168.66	1437	WSP, STV, ER	8.2	5.66	167.98	300	Q
#205#	19 47 0	-5.94	168.51	1437	SM, WSP(NP), CE(1.7), ER	8.0	4.63	167.95	300	Q
#205#	19 48 0	-9.10	168.36	1437	SM, ME, ER	7.5	3.43	167.92	300	Q
#205#	19 49 0	-12.25	168.22	1437	SM, ME, ER	7.5	2.02	167.88	300	Q
#205#	19 50 0	-15.40	168.07	1436	SM, ME, ER	7.5	0.32	167.85	300	Q
#205#	19 51 0	-18.56	167.93	1436			-1.71	167.80	300	Q
#205#	19 52 0	-21.71	167.79	1435			-4.11	167.76	300	
#205#	19 53 0	-24.86	167.66	1434			-6.91	167.70	300	

ORBIT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 25 JULY 1978 DAY 206

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#206#	7	56	0	-25.73	164.62	1372			-8.46	166.26	300	
#206#	7	57	0	-22.52	164.49	1371			-5.46	166.32	300	Q
#206#	7	58	0	-19.32	164.35	1370			-2.83	166.38	300	Q
#206#	7	59	0	-16.11	164.22	1370	SM	9.5	-0.58	166.44	300	Q
#206#	8	0	0	-12.91	164.07	1369	SM	>10.0	1.30	166.49	300	Q
#206#	8	1	0	-9.70	163.93	1369	SM	>10.0	2.88	166.53	300	Q
#206#	8	2	0	-6.48	163.78	1368	SM	>10.0	4.20	166.56	300	Q
#206#	8	3	0	-3.27	163.63	1368	SM	>10.0	5.34	166.57	300	Q
#206#	8	4	0	-0.06	163.49	1368	SM	10.0	6.34	166.58	300	Q
#206#	8	5	0	3.15	163.34	1368	SM	9.1	7.25	166.57	300	Q
#206#	8	6	0	6.36	163.19	1368	SM	9.0	8.11	166.55	300	Q
#206#	8	7	0	9.57	163.04	1368	SM	9.6	8.94	166.52	300	Q
#206#	8	8	0	12.78	162.90	1368	SM	>10.0	9.78	166.48	300	Q
#206#	8	9	0	15.99	162.76	1368	SM	>10.0	10.67	166.43	300	Q
#206#	8	10	0	19.20	162.62	1368	SM	>10.0	11.63	166.36	300	Q
#206#	8	11	0	22.41	162.48	1369	SM	>10.0	12.71	166.28	300	Q
#206#	8	12	0	25.61	162.35	1369	SM	>10.0	13.94	166.18	300	Q
#206#	8	13	0	28.81	162.23	1370	SM	>10.0	15.40	166.05	300	Q
#206#	8	14	0	32.01	162.12	1371			17.15	165.90	300	
#206#	8	15	0	35.21	162.01	1372			19.22	165.72	300	
#206#	8	16	0	38.40	161.92	1372			21.68	165.53	300	
#206#	8	17	0	41.59	161.84	1373			24.50	165.32	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 25 JULY 1978 DAY 206

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#206#	18 17 0	38.46	-171.70	1427			23.59	176.53	300	
#206#	18 18 0	35.32	-171.79	1428			21.06	175.99	300	
#206#	18 19 0	32.17	-171.90	1430	SM, ER	8.0	18.83	175.48	300	Q
#206#	18 20 0	29.02	-172.01	1431	SM, ER	8.2	16.88	175.02	300	WS
#206#	18 21 0	25.87	-172.14	1432	SM, ER	8.5	15.20	174.62	300	WS
#206#	18 22 0	22.71	-172.27	1433	SM, ER	9.0	13.74	174.29	300	WS
#206#	18 23 0	19.56	-172.40	1434	SM, ER	9.0	12.46	174.03	300	WS
#206#	18 24 0	16.41	-172.54	1434	SM, ER	9.0	11.31	173.84	300	WS
#206#	18 25 0	13.25	-172.69	1435	SM, SP(NP), ER	8.3	10.25	173.71	300	WS
#206#	18 26 0	10.10	-172.83	1436	VSP(>3.5), STV, ER	8.0	9.25	173.63	300	Q
#206#	18 27 0	6.94	-172.98	1436	VSP(>3), STV, ER	8.0	8.27	173.62	300	Q
#206#	18 28 0	3.79	-173.13	1436	VSP(>2), STV, ER	8.0	7.27	173.66	300	Q
#206#	18 29 0	0.63	-173.28	1437	VSP(>2), STV, ER	8.0	6.22	173.75	300	Q
#206#	18 30 0	-2.52	-173.43	1437	VSP(>2), STV, ER	9.0	5.08	173.91	300	Q
#206#	18 31 0	-5.68	-173.58	1437	VSP(>2.5), STV, ER	9.0	3.81	174.13	300	Q
#206#	18 32 0	-8.83	-173.73	1436	VSP(>3), STV, ER	9.0	2.37	174.42	300	Q
#206#	18 33 0	-11.99	-173.88	1436	SP(>4), STV, ER	8.0	0.70	174.77	300	Q
#206#	18 34 0	-15.14	-174.02	1436	SM, ER	7.2	-1.23	175.18	300	Q
#206#	18 35 0	-18.29	-174.16	1435			-3.46	175.64	300	
#206#	18 36 0	-21.45	-174.30	1435			-6.00	176.13	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 25 JULY 1978 DAY 206

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#206#	20 10 0	40.58	159.85	1426			23.24	164.67	300	Q
#206#	20 11 0	37.44	159.77	1427	SM	7.9	20.62	164.86	300	Q
#206#	20 12 0	34.29	159.67	1429	SM	8.9	18.38	165.03	300	Q
#206#	20 13 0	31.14	159.56	1430	SM	9.0	16.49	165.17	300	Q
#206#	20 14 0	27.99	159.44	1431	SM	9.5	14.90	165.29	300	Q
#206#	20 15 0	24.84	159.31	1432	SM	9.5	13.56	165.37	300	Q
#206#	20 16 0	21.68	159.18	1433	SM, ER	9.1	12.41	165.42	300	Q
#206#	20 17 0	18.53	159.04	1434	SM, ER	9.0	11.41	165.45	300	Q
#206#	20 18 0	15.38	158.90	1435	SM, ER	8.8	10.50	165.46	300	Q
#206#	20 19 0	12.22	158.76	1435	SM, ER	8.7	9.65	165.44	300	Q
#206#	20 20 0	9.07	158.61	1436	SM, ER	9.2	8.83	165.40	300	Q
#206#	20 21 0	5.91	158.46	1436	SM, ER	9.1	8.01	165.33	300	Q
#206#	20 22 0	2.76	158.31	1436	SM, ER	8.8	7.16	165.24	300	Q
#206#	20 23 0	-0.40	158.16	1437	SM, ER	8.1	6.25	165.12	300	Q
#206#	20 24 0	-3.55	158.01	1437	SM, ER	8.0	5.24	164.96	300	Q
#206#	20 25 0	-6.71	157.86	1437	SM, SP(<1.7), ER	7.5	4.10	164.77	300	Q
#206#	20 26 0	-9.86	157.71	1436	SM, SP(<2), ER	7.5	2.76	164.53	300	Q
#206#	20 27 0	-13.02	157.57	1436	SM, SP(<2), ER	7.5	1.18	164.25	300	Q
#206#	20 28 0	-16.17	157.42	1435	SM, ER	7.0	-0.70	163.91	300	Q
#206#	20 29 0	-19.32	157.28	1435	SM, ER	6.5	-2.93	163.53	300	WS
#206#	20 30 0	-22.47	157.15	1434	SM, ER	6.2	-5.52	163.10	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 26 JULY 1978 DAY 207

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#207#	6 41 0	-22.74	-177.60	1371			-7.05	174.75	300	
#207#	6 42 0	-19.54	-177.74	1370			-4.27	174.18	300	Q
#207#	6 43 0	-16.33	-177.88	1369	SM	>10.0	-1.82	173.64	300	Q
#207#	6 44 0	-13.13	-178.02	1369	SM	>10.0	0.29	173.16	300	Q
#207#	6 45 0	-9.92	-178.16	1369	SM	>10.0	2.07	172.73	300	Q
#207#	6 46 0	-6.71	-178.31	1368	SM	>10.0	3.59	172.37	300	Q
#207#	6 47 0	-3.49	-178.46	1368	SM	9.9	4.89	172.08	300	Q
#207#	6 48 0	-0.28	-178.61	1368	SM	9.0	6.04	171.85	300	Q
#207#	6 49 0	2.93	-178.75	1368	SM, ER	7.5	7.06	171.67	300	Q
#207#	6 50 0	6.14	-178.90	1368	SM, ER	8.4	8.02	171.54	300	Q
#207#	6 51 0	9.35	-179.05	1368	SM	9.9	8.94	171.45	300	Q
#207#	6 52 0	12.56	-179.19	1368	SM	>10.0	9.86	171.40	300	Q
#207#	6 53 0	15.77	-179.34	1369	SM	>10.0	10.82	171.39	300	Q
#207#	6 54 0	18.98	-179.48	1369	SM	>10.0	11.85	171.42	300	Q
#207#	6 55 0	22.18	-179.61	1370	SM	>10.0	12.99	171.49	300	Q
#207#	6 56 0	25.39	-179.74	1370	SM	>10.0	14.30	171.61	300	Q
#207#	6 57 0	28.59	-179.86	1371	SM	>10.0	15.81	171.77	300	Q
#207#	6 58 0	31.79	-179.98	1372	SM	10.2	17.60	171.98	300	Q
#207#	6 59 0	34.98	179.92	1372	SM	9.5	19.71	172.23	300	Q
#207#	7 0 0	38.18	179.83	1373	SM, ER	8.7	22.17	172.51	300	Q
#207#	7 1 0	41.37	179.75	1374	SM, ME(<2), ER	8.6	24.97	172.82	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 26 JULY 1978 DAY 207

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#207#	8 35 0	-21.69	153.84	1370			-5.97	161.30	300	
#207#	8 36 0	-18.49	153.71	1370	SM, ER	8.0	-3.34	161.70	300	VSSC
#207#	8 37 0	-15.28	153.57	1369	SM, ER	7.7	-1.06	162.07	300	SSC
#207#	8 38 0	-12.07	153.43	1369	SM, ER	9.5	0.89	162.40	300	SC
#207#	8 39 0	-8.86	153.28	1368	SM	>10.0	2.56	162.68	300	SSC
#207#	8 40 0	-5.65	153.13	1368	SM	>10.0	3.99	162.91	300	SC
#207#	8 41 0	-2.44	152.99	1368	SM	>10.0	5.23	163.08	300	SC
#207#	8 42 0	0.77	152.84	1368	SM	>10.0	6.34	163.19	300	SC
#207#	8 43 0	3.98	152.69	1368	SM	>10.0	7.36	163.26	300	WS
#207#	8 44 0	7.19	152.54	1368	SM	9.9	8.32	163.28	300	WS
#207#	8 45 0	10.40	152.39	1368	SM	10.1	9.28	163.26	300	Q
#207#	8 46 0	13.61	152.25	1369	SM	>10.0	10.26	163.19	300	Q
#207#	8 47 0	16.82	152.11	1369	SM	>10.0	11.29	163.08	300	Q
#207#	8 48 0	20.03	151.97	1369	SM	>10.0	12.42	162.91	300	Q
#207#	8 49 0	23.23	151.84	1370	SM	>10.0	13.70	162.69	300	Q
#207#	8 50 0	26.44	151.71	1370	SM	10.5	15.16	162.41	300	Q
#207#	8 51 0	29.64	151.59	1371	SM	>10.0	16.87	162.06	300	WS
#207#	8 52 0	32.83	151.48	1372	SM	>10.0	18.86	161.66	300	WS
#207#	8 53 0	36.03	151.38	1373	SM	10.5	21.18	161.22	300	WS
#207#	8 54 0	39.22	151.29	1374	SM	9.7	23.81	160.75	300	SC

OBJECT: 3469 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 26 JULY 1978 DAY 207

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
207	18	54	0	40.83	177.75	1427			23.70	171.71	300	Q
207	18	55	0	37.69	177.67	1428	SM, ER	8.0	21.02	171.39	300	Q
207	18	56	0	34.54	177.57	1429	SM, ER	8.5	18.71	171.10	300	Q
207	18	57	0	31.39	177.46	1430	SM, ER	8.3	16.75	170.83	300	Q
207	18	58	0	28.24	177.34	1431	SM, ME, ER	8.1	15.11	170.61	300	Q
207	18	59	0	25.09	177.22	1432	SM, ME, ER	8.4	13.72	170.43	300	Q
207	19	0	0	21.94	177.09	1433	SM, ME, ER	7.9	12.54	170.28	300	Q
207	19	1	0	18.78	176.95	1434	SM, ER	7.5	11.50	170.16	300	Q
207	19	2	0	15.63	176.81	1435	SM, WSP(<2.5), ER	7.1	10.57	170.08	300	Q
207	19	3	0	12.48	176.67	1435	SM, WSP(<2), ER	6.9	9.71	170.01	300	Q
207	19	4	0	9.32	176.52	1436	SM, WSP(NP), ER	6.7	8.89	169.97	300	Q
207	19	5	0	6.17	176.37	1436	SM, WSP(>3.5), ER	6.8	8.07	169.95	300	Q
207	19	6	0	3.01	176.22	1436	SM, WSP(>4), ER	6.9	7.24	169.95	300	Q
207	19	7	0	-0.15	176.07	1436	SM, WSP(>4), ER	7.0	6.35	169.97	300	Q
207	19	8	0	-3.30	175.92	1436	SM, ER	7.0	5.38	170.02	300	Q
207	19	9	0	-6.46	175.77	1436	SM, ER	7.0	4.28	170.08	300	Q
207	19	10	0	-9.61	175.62	1436	SM, ER	7.0	3.00	170.18	300	Q
207	19	11	0	-12.77	175.47	1435			1.50	170.30	300	Q
207	19	12	0	-15.92	175.33	1435			-0.29	170.45	300	Q
207	19	13	0	-19.07	175.19	1434			-2.42	170.63	300	Q
207	19	14	0	-22.23	175.05	1433			-4.92	170.83	300	Q
207	19	15	0	-25.38	174.92	1433			-7.79	171.03	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 26 JULY 1978 DAY 207

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#207#	20	48	0	39.80	149.22	1427			24.26	159.85	300	
#207#	20	49	0	36.66	149.13	1428			21.66	160.27	300	
#207#	20	50	0	33.51	149.03	1430			19.38	160.66	300	
#207#	20	51	0	30.36	148.92	1431			17.39	161.00	300	
#207#	20	52	0	27.21	148.80	1432			15.68	161.29	300	
#207#	20	53	0	24.06	148.67	1433	SM, ME(<2), CE(1.5), ER	8.3	14.20	161.50	300	Q
#207#	20	54	0	20.91	148.53	1434	OFF		12.91	161.66	300	Q
#207#	20	55	0	17.75	148.40	1434	SM, ME, ER	8.8	11.75	161.75	300	Q
#207#	20	56	0	14.60	148.25	1435	SM, ER	9.0	10.69	161.78	300	Q
#207#	20	57	0	11.44	148.11	1435	SM, ER	8.8	9.68	161.75	300	Q
#207#	20	58	0	8.29	147.96	1436	SM, ER	8.4	8.69	161.66	300	Q
#207#	20	59	0	5.13	147.81	1436	SM, ER	8.0	7.69	161.51	300	Q
#207#	21	0	0	1.98	147.66	1436	SM, ER	8.1	6.63	161.29	300	Q
#207#	21	1	0	-1.18	147.51	1436	SM, CE(1.4), ER	8.0	5.49	161.00	300	Q
#207#	21	2	0	-4.33	147.36	1436	SM, ME, ER	≈ 7.5	4.21	160.63	300	Q
#207#	21	3	0	-7.49	147.21	1436	SM, ME, ER	≈ 7.5	2.76	160.18	300	Q
#207#	21	4	0	-10.64	147.06	1436	SM, ME, CE(1.5)	7.4	1.08	159.65	300	Q
#207#	21	5	0	-13.80	146.92	1435			-0.86	159.04	300	
#207#	21	6	0	-16.95	146.78	1435			-3.09	158.36	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 27 JULY 1978 DAY 208

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#208#	7 18 0	-25.10	171.88	1371	SM, ER	7.0	-7.91	169.67	300	Q
#208#	7 19 0	-21.90	171.75	1370	SM, ER	7.0	-4.96	169.46	300	Q
#208#	7 20 0	-18.70	171.62	1370	SM, ER	7.7	-2.39	169.26	300	Q
#208#	7 21 0	-15.49	171.48	1369	SM, ER	9.0	-0.20	169.08	300	Q
#208#	7 22 0	-12.28	171.33	1369	SM, ER	11.1	1.63	168.93	300	Q
#208#	7 23 0	-9.07	171.19	1369	SM	>10.0	3.16	168.81	300	Q
#208#	7 24 0	-5.86	171.04	1368	SM	>10.0	4.45	168.70	300	Q
#208#	7 25 0	-2.65	170.89	1368	SM	10.5	5.55	168.61	300	Q
#208#	7 26 0	0.56	170.75	1368	SM	9.5	6.53	168.54	300	Q
#208#	7 27 0	3.77	170.60	1368	SM	8.9	7.43	168.48	300	Q
#208#	7 28 0	6.98	170.45	1368	SM, ER	9.0	8.27	168.43	300	Q
#208#	7 29 0	10.19	170.30	1369	SM	10.0	9.09	168.38	300	Q
#208#	7 30 0	13.40	170.16	1369	SM	>10.0	9.93	168.35	300	Q
#208#	7 31 0	16.61	170.02	1370	SM, ER	12.8	10.82	168.32	300	Q
#208#	7 32 0	19.82	169.88	1370	SM, ER	12.7	11.78	168.30	300	Q
#208#	7 33 0	23.02	169.75	1371	SM, ER	12.0	12.86	168.28	300	Q
#208#	7 34 0	26.22	169.62	1371	SM, ER	10.7	14.11	168.27	300	Q
#208#	7 35 0	29.42	169.50	1372	SM, ER	10.5	15.59	168.27	300	Q
#208#	7 36 0	32.62	169.39	1373	SM, ER	9.5	17.36	168.27	300	Q
#208#	7 37 0	35.82	169.28	1374	SM, ER	8.7	19.47	168.27	300	Q
#208#	7 38 0	39.01	169.19	1375	SM, ER	8.0	21.97	168.28	300	Q
#208#	7 39 0	42.19	169.12	1376	SM	8.5	24.84	168.30	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 27 JULY 1978 DAY 208

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
208	19 31 0	43.19	167.19	1426			25.28	167.51	300	
208	19 32 0	40.04	167.12	1428	SM, ME, ER	8.0	22.37	167.50	300	Q
208	19 33 0	36.89	167.03	1429	SM, WSP, ER	8.2	19.84	167.49	300	Q
208	19 34 0	33.75	166.93	1430	SM, WSP, ER	8.5	17.69	167.47	300	Q
208	19 35 0	30.60	166.82	1431	SM, ME, ER	8.5	15.90	167.46	300	Q
208	19 36 0	27.45	166.70	1432	SM, ME, ER	8.2	14.40	167.44	300	Q
208	19 37 0	24.30	166.57	1433	VSP, ME, ER	7.5	13.15	167.42	300	Q
208	19 38 0	21.14	166.44	1434	VVSP, STV, ME, ER	7.5	12.07	167.40	300	Q
208	19 39 0	17.99	166.30	1434	VVSP, STV, ME, ER	7.0	11.12	167.37	300	Q
208	19 40 0	14.84	166.16	1435	VVSP, STV, ME, ER	6.9	10.25	167.34	300	Q
208	19 41 0	11.68	166.02	1435	VVSP(<6), STV, ME, ER	7.2	9.45	167.31	300	Q
208	19 42 0	8.53	165.87	1436	VSP(<4), STV, ME, ER	7.2	8.67	167.27	300	Q
208	19 43 0	5.37	165.72	1436	VSP(<3), STV, ME, ER	7.3	7.89	167.23	300	Q
208	19 44 0	2.22	165.57	1436	VSP(<4), STV, ME, ER	7.8	7.07	167.18	300	Q
208	19 45 0	-0.94	165.42	1436	VSP(<5), STV, ME, ER	7.9	6.20	167.13	300	Q
208	19 46 0	-4.09	165.27	1436	SP(<7), STV, ER	8.0	5.23	167.06	300	Q
208	19 47 0	-7.25	165.12	1435	SP, STV, ER	7.5	4.13	166.98	300	Q
208	19 48 0	-10.40	164.97	1435	SM, RSP, ER	7.5	2.84	166.89	300	Q
208	19 49 0	-13.56	164.83	1435	SM, ME(<1.7), RSP, ER	7.0	1.31	166.78	300	Q
208	19 50 0	-16.71	164.68	1434	SM, ME(<2), ER	6.6	-0.54	166.64	300	Q
208	19 51 0	-19.87	164.54	1433	SM, ME, ER	6.6	-2.74	166.49	300	Q
208	19 52 0	-23.02	164.41	1432	SM, ME, ER	6.0	-5.33	166.32	300	Q
208	19 53 0	-26.17	164.28	1431			-8.30	166.14	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 28 JULY 1978 DAY 209

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
209	6	5	0	-15.69	-170.61	1369			-2.81	177.71	300	
209	6	6	0	-12.48	-170.76	1369			-0.57	177.02	300	
209	6	7	0	-9.27	-170.90	1369	SM	>10.0	1.38	176.40	300	Q
209	6	8	0	-6.06	-171.05	1369	SM	>10.0	3.08	175.85	300	Q
209	6	9	0	-2.85	-171.20	1369	SM	10.3	4.57	175.40	300	Q
209	6	10	0	0.37	-171.35	1369	SM ER	9.5	5.88	175.03	300	Q
209	6	11	0	3.58	-171.49	1369	SM	9.7	7.08	174.74	300	Q
209	6	12	0	6.79	-171.64	1369	SM	>10.0	8.19	174.53	300	Q
209	6	13	0	10.00	-171.79	1369	SM	>10.0	9.26	174.40	300	Q
209	6	14	0	13.21	-171.93	1370	SM	>10.0	10.34	174.33	300	Q
209	6	15	0	16.41	-172.07	1370	SM	>10.0	11.46	174.33	300	Q
209	6	16	0	19.62	-172.21	1371	SM	>10.0	12.66	174.41	300	Q
209	6	17	0	22.82	-172.35	1371	SM	10.5	13.99	174.55	300	Q
209	6	18	0	26.02	-172.47	1372	SM	10.5	15.50	174.76	300	Q
209	6	19	0	29.22	-172.60	1373	SM	10.1	17.22	175.04	300	Q
209	6	20	0	32.42	-172.71	1374			19.21	175.39	300	
209	6	21	0	35.61	-172.81	1375			21.48	175.78	300	

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8.5

209	7	56	0	-24.25	161.24	1370	SM, ME, ER	~ 7.0	-7.27	164.73	300	Q
209	7	57	0	-21.05	161.11	1370	SM, ME, CE(1.6), ER	7.1	-4.42	164.91	300	Q
209	7	58	0	-17.84	160.97	1369	SM, ME, ER	8.0	-1.95	165.08	300	Q
209	7	59	0	-14.63	160.83	1369	SM	10.0	0.15	165.24	300	Q
209	8	0	0	-11.42	160.69	1369	SM	>10.0	1.92	165.37	300	Q
209	8	1	0	-8.21	160.54	1369	SM	>10.0	3.40	165.48	300	Q
209	8	2	0	-5.00	160.39	1369	SM	>10.0	4.66	165.55	300	Q
209	8	3	0	-1.79	160.25	1369	SM	>10.0	5.75	165.61	300	Q
209	8	4	0	1.42	160.10	1369	SM	10.5	6.73	165.64	300	Q
209	8	5	0	4.63	159.95	1369	SM	10.5	7.63	165.65	300	Q
209	8	6	0	7.84	159.80	1369	SM	10.3	8.50	165.64	300	Q
209	8	7	0	11.05	159.66	1369	SM	10.7	9.35	165.60	300	Q
209	8	8	0	14.26	159.51	1370	SM	>10.0	10.23	165.55	300	Q
209	8	9	0	17.47	159.37	1370	SM	>10.0	11.17	165.47	300	Q
209	8	10	0	20.67	159.23	1371	SM	>10.0	12.21	165.37	300	Q
209	8	11	0	23.87	159.10	1372	SM	>10.0	13.38	165.24	300	Q
209	8	12	0	27.07	158.98	1373	SM	>10.0	14.75	165.07	300	Q
209	8	13	0	30.27	158.86	1373	SM	>10.0	16.36	164.87	300	Q
209	8	14	0	33.47	158.75	1374			18.29	164.63	300	
209	8	15	0	36.66	158.65	1375			20.56	164.36	300	
209	8	16	0	39.85	158.56	1376			23.19	164.07	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 28 JULY 1978 DAY 209

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
209	18	17	0	37.12	-175.06	1429			21.73	174.54	300	Q
209	18	18	0	33.97	-175.16	1430	SM, ME, ER	7.5	19.38	174.08	300	Q
209	18	19	0	30.83	-175.27	1431	SM, ME, ER	7.1	17.35	173.66	300	Q
209	18	20	0	27.68	-175.39	1432	SM, ME, ER	7.0	15.61	173.29	300	Q
209	18	21	0	24.53	-175.52	1433	SM, ME, ER	6.9	14.12	172.98	300	Q
209	18	22	0	21.37	-175.65	1434	SM, ME, ER	6.7	12.83	172.74	300	Q
209	18	23	0	18.22	-175.79	1434	SM, ME, ER	7.0	11.70	172.55	300	Q
209	18	24	0	15.07	-175.93	1435	SM, WSP(<2), ER	6.8	10.67	172.41	300	Q
209	18	25	0	11.91	-176.08	1435	SM, WSP(<2), ER	6.4	9.71	172.32	300	Q
209	18	26	0	8.76	-176.22	1435	SM, ER	6.5	8.79	172.28	300	Q
209	18	27	0	5.60	-176.37	1436	SM, ER	6.7	7.88	172.28	300	Q
209	18	28	0	2.45	-176.52	1436	SM, ER	6.6	6.94	172.32	300	Q
209	18	29	0	-0.71	-176.67	1436	SM, ER	6.5	5.93	172.41	300	Q
209	18	30	0	-3.87	-176.82	1435	SM, ER	6.5	4.82	172.55	300	Q
209	18	31	0	-7.02	-176.97	1435	SM, ER	6.5	3.57	172.74	300	Q
209	18	32	0	-10.18	-177.12	1434	SM, ER	7.0	2.12	172.99	300	Q
209	18	33	0	-13.33	-177.27	1434	SM, ER	6.6	0.43	173.29	300	Q
209	18	34	0	-16.49	-177.41	1433	SM, SP(<1.6), ER	6.5	-1.55	173.64	300	Q
209	18	35	0	-19.64	-177.55	1432	SM, WSP(<1.7), ER	6.4	-3.86	174.04	300	Q
209	18	36	0	-22.80	-177.68	1432	SM, ME, ER	6.4	-6.50	174.46	300	Q
209	20	9	0	42.38	156.56	1427			25.27	163.10	300	
209	20	10	0	39.24	156.49	1429	SM, ME, WSP, ER	9.0	22.45	163.39	300	Q
209	20	11	0	36.09	156.40	1430	SM, ME, ER	9.0	19.97	163.65	300	Q
209	20	12	0	32.94	156.29	1431	SM, ME, ER	9.0	17.85	163.89	300	Q
209	20	13	0	29.79	156.18	1432	SM, ME, CE(1.6), ER	8.5	16.05	164.09	300	Q
209	20	14	0	26.64	156.06	1433	SM, ME, ER	7.7	14.54	164.24	300	Q
209	20	15	0	23.49	155.93	1433	SM, ME, CE(1.5), ER	7.1	13.25	164.36	300	Q
209	20	16	0	20.34	155.80	1434	SM, ME, SP, ER	6.9	12.12	164.43	300	Q
209	20	17	0	17.19	155.66	1435	SM, SP(<2.5), ER	7.6	11.13	164.47	300	Q
209	20	18	0	14.03	155.51	1435	SM, SP(<2.5), ER	7.5	10.21	164.47	300	Q
209	20	19	0	10.88	155.37	1435	SM, SP(<2), ER	7.7	9.34	164.44	300	Q
209	20	20	0	7.72	155.22	1436	SM, SP(<2), ER	8.1	8.48	164.38	300	Q
209	20	21	0	4.57	155.07	1436	SM, SP(<2), ER	7.8	7.62	164.28	300	Q
209	20	22	0	1.41	154.92	1436	SM, SP(<2), ER	7.2	6.70	164.14	300	Q
209	20	23	0	-1.74	154.77	1435	SM, SP(<2), ER	7.0	5.71	163.96	300	Q
209	20	24	0	-4.90	154.62	1435	SM, WSP(<2), ER	7.0	4.59	163.74	300	Q
209	20	25	0	-8.06	154.47	1435	SM, ER	7.0	3.30	163.45	300	Q
209	20	26	0	-11.21	154.32	1434	SM, ME, ER	7.1	1.80	163.11	300	Q
209	20	27	0	-14.37	154.18	1434	SM, ME, ER	6.6	0.02	162.71	300	Q
209	20	28	0	-17.52	154.04	1433			-2.09	162.24	300	Q
209	20	29	0	-20.68	153.90	1432			-4.54	161.72	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 29 JULY 1978 DAY 210

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
210	6	41	0	-21.23	179.02	1370			-5.14	172.75	300	Q
210	6	42	0	-18.02	178.88	1369	SM	>10.0	-2.55	172.30	300	Q
210	6	43	0	-14.82	178.74	1369	SM	>10.0	-0.34	171.89	300	Q
210	6	44	0	-11.61	178.60	1369	SM	>10.0	1.53	171.54	300	Q
210	6	45	0	-8.40	178.45	1369	SM	>10.0	3.11	171.24	300	Q
210	6	46	0	-5.19	178.30	1369	SM	10.5	4.45	170.99	300	Q
210	6	47	0	-1.98	178.16	1369	SM, ER	8.5	5.60	170.79	300	Q
210	6	48	0	1.23	178.01	1369	SM, ER	7.9	6.62	170.63	300	Q
210	6	49	0	4.45	177.86	1369	SM, ER	7.8	7.56	170.51	300	Q
210	6	50	0	7.66	177.71	1370	SM, ER	8.2	8.45	170.42	300	Q
210	6	51	0	10.86	177.57	1370	SM	9.7	9.32	170.37	300	Q
210	6	52	0	14.07	177.42	1371	SM	>10.0	10.21	170.34	300	Q
210	6	53	0	17.28	177.28	1371	SM	>10.0	11.15	170.33	300	Q
210	6	54	0	20.48	177.14	1372	SM	>10.0	12.18	170.36	300	Q
210	6	55	0	23.69	177.01	1373	SM	>10.0	13.34	170.42	300	Q
210	6	56	0	26.89	176.88	1373	SM	>10.0	14.69	170.51	300	Q
210	6	57	0	30.08	176.77	1374	SM	>10.0	16.27	170.63	300	Q
210	6	58	0	33.28	176.66	1375			18.15	170.79	300	Q
210	6	59	0	36.47	176.56	1376			20.38	170.98	300	Q
210	7	0	0	39.66	176.47	1377			22.97	171.19	300	Q

210	8	35	0	-20.18	150.46	1370			-5.34	159.64	300	Q
210	8	36	0	-16.97	150.33	1369			-2.83	160.11	300	Q
210	8	37	0	-13.76	150.19	1369	SM, ER	7.0	-0.63	160.56	300	Q
210	8	38	0	-10.55	150.04	1369	SM, ER	9.0	1.27	160.94	300	Q
210	8	39	0	-7.34	149.90	1369	SM	10.5	2.90	161.27	300	Q
210	8	40	0	-4.13	149.75	1369	SM	>10.0	4.32	161.53	300	Q
210	8	41	0	-0.92	149.60	1369	SM	>10.0	5.58	161.73	300	Q
210	8	42	0	2.29	149.45	1369	SM	>10.0	6.72	161.86	300	Q
210	8	43	0	5.50	149.30	1369	SM	>10.0	7.78	161.93	300	Q
210	8	44	0	8.71	149.15	1370	SM	>10.0	8.81	161.94	300	Q
210	8	45	0	11.92	149.01	1370	SM	>10.0	9.84	161.89	300	Q
210	8	46	0	15.13	148.87	1371	SM	10.5	10.91	161.78	300	Q
210	8	47	0	18.33	148.73	1371	SM	10.5	12.06	161.62	300	Q
210	8	48	0	21.54	148.59	1372	SM	10.2	13.34	161.38	300	Q
210	8	49	0	24.74	148.46	1373	SM, ER	8.9	14.78	161.08	300	Q
210	8	50	0	27.94	148.34	1374	SM, ER	8.7	16.43	160.71	300	Q
210	8	51	0	31.13	148.22	1375	SM, ER	8.7	18.34	160.28	300	Q
210	8	52	0	34.33	148.11	1376	SM, ER	8.6	20.55	159.79	300	Q
210	8	53	0	37.52	148.02	1377	SM	9.2	23.04	159.26	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 29 JULY 1970 DAY 210

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
210	18	53	0	42.60	174.47	1428			24.98	170.45	300	
210	18	54	0	39.45	174.39	1429	SM, ER	7.0	22.13	170.23	300	Q
210	18	55	0	36.31	174.30	1430	SM, ER	7.2	19.64	170.01	300	WS
210	18	56	0	33.16	174.20	1431	SM, ER	7.5	17.53	169.81	300	WS
210	18	57	0	30.01	174.09	1432	SM, ER	7.6	15.76	169.64	300	Q
210	18	58	0	26.86	173.97	1433	SM, ER	8.0	14.28	169.50	300	Q
210	18	59	0	23.71	173.84	1433	SM, ER	8.1	13.03	169.38	300	Q
210	19	0	0	20.56	173.70	1434	SP(>3.5), STV, ER	7.8	11.95	169.29	300	Q
210	19	1	0	17.40	173.56	1434	VVSP(>2), STV, ER	8.0	11.00	169.21	300	Q
210	19	2	0	14.25	173.42	1435	VVSP(>1.5), STV, ME, ER	7.8	10.13	169.15	300	Q
210	19	3	0	11.10	173.28	1435	VVSP(>1.4), STV, ME, ER	7.5	9.32	169.11	300	Q
210	19	4	0	7.94	173.13	1435	VVSP, STV, ME, ER	7.0	8.53	169.07	300	Q
210	19	5	0	4.78	172.98	1435	VVSP, STV, ME, ER	7.0	7.73	169.05	300	Q
210	19	6	0	1.63	172.83	1435	VVSP(>1.6), STV, ME, ER	7.1	6.90	169.04	300	Q
210	19	7	0	-1.53	172.68	1435	VVSP, STV, ME, ER	7.0	6.00	169.05	300	Q
210	19	8	0	-4.68	172.53	1435	VVSP, STV, ME, ER	7.2	5.00	169.06	300	Q
210	19	9	0	-7.84	172.38	1434	VVSP, STV, ME, ER	7.0	3.86	169.09	300	Q
210	19	10	0	-11.00	172.23	1434	VSP(>2.5), STV, ME, ER	7.0	2.52	169.13	300	Q
210	19	11	0	-14.15	172.09	1433	SM, WSP(>4.5), ER	6.8	0.93	169.19	300	Q
210	19	12	0	-17.31	171.94	1432	SM, ME, ER	6.0	-0.98	169.26	300	Q
210	19	13	0	-20.46	171.81	1431	SM, ME, ER	6.0	-3.26	169.35	300	Q
210	19	14	0	-23.62	171.67	1430			-5.92	169.43	300	
210	20	49	0	35.27	145.76	1430			21.36	158.65	300	
210	20	50	0	32.13	145.66	1431			19.16	159.07	300	
210	20	51	0	28.98	145.54	1432	SM, WSP, ME, ER	8.5	17.23	159.43	300	Q
210	20	52	0	25.83	145.42	1433	SM, WSP, ME, ER	8.0	15.54	159.72	300	Q
210	20	53	0	22.68	145.29	1434	SM, ME, ER	8.7	14.06	159.94	300	Q
210	20	54	0	19.52	145.15	1434	SM, ME(<2), ER	8.0	12.74	160.09	300	Q
210	20	55	0	16.37	145.01	1435	SM, SP(<2), ER	7.7	11.54	160.16	300	Q
210	20	56	0	13.22	144.87	1435	SM, SP(<1.7), ER	6.8	10.42	160.16	300	Q
210	20	57	0	10.06	144.72	1435	SM, ER	6.6	9.33	160.09	300	Q
210	20	58	0	6.91	144.57	1435	SM, WSP(<1.8), ER	6.6	8.25	159.94	300	Q
210	20	59	0	3.75	144.42	1435	SM, WSP(<1.7), ER	6.7	7.13	159.71	300	Q
210	21	0	0	0.59	144.27	1435	SM, ER	7.2	5.93	159.40	300	Q
210	21	1	0	-2.56	144.12	1435	SM, WSP(<1.7), ER	7.3	4.62	159.00	300	Q
210	21	2	0	-5.72	143.97	1434	SM, ER	7.2	3.15	158.51	300	Q
210	21	3	0	-8.88	143.82	1434	SM, ME, ER	6.5	1.48	157.93	300	Q
210	21	4	0	-12.03	143.68	1433	SM, ME, ER	6.6	-0.43	157.27	300	Q
210	21	5	0	-15.19	143.53	1433	SM, ME, ER	6.1	-2.61	156.55	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 30 JULY 1978 DAY 211

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
211	7 18 0	-23.55	168.51	1370			-6.33	168.08	300	Q
211	7 19 0	-20.35	168.37	1370	SM, ER	7.0	-3.57	167.99	300	Q
211	7 20 0	-17.14	168.24	1369	SM, ER	7.3	-1.19	167.92	300	Q
211	7 21 0	-13.93	168.10	1369	SM, ER	9.0	0.80	167.86	300	Q
211	7 22 0	-10.72	167.95	1369	SM	>10.0	2.46	167.80	300	Q
211	7 23 0	-7.51	167.81	1369	SM	>10.0	3.85	167.75	300	Q
211	7 24 0	-4.30	167.66	1369	SM	>10.0	5.03	167.71	300	Q
211	7 25 0	-1.09	167.51	1369	SM	10.2	6.06	167.67	300	Q
211	7 26 0	2.12	167.36	1370	SM	9.6	6.98	167.63	300	Q
211	7 27 0	5.33	167.21	1370	SM	9.4	7.84	167.60	300	Q
211	7 28 0	8.54	167.06	1370	SM	10.0	8.67	167.56	300	Q
211	7 29 0	11.74	166.92	1371	SM	>10.0	9.49	167.52	300	Q
211	7 30 0	14.95	166.78	1372	SM	>10.0	10.34	167.49	300	Q
211	7 31 0	18.16	166.64	1372	SM	>10.0	11.26	167.44	300	Q
211	7 32 0	21.36	166.50	1373	SM	>10.0	12.27	167.40	300	Q
211	7 33 0	24.56	166.37	1374	SM	>10.0	13.42	167.35	300	Q
211	7 34 0	27.76	166.24	1375	SM	>10.0	14.77	167.29	300	Q
211	7 35 0	30.95	166.13	1376	SM	9.8	16.37	167.23	300	Q
211	7 36 0	34.15	166.02	1377	SM	9.6	18.30	167.16	300	Q
211	7 37 0	37.34	165.92	1378	SM, ER	9.3	20.59	167.07	300	Q
211	7 38 0	40.52	165.84	1379	SM, ER	8.7	23.26	166.99	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 30 JULY 1978 DAY 211

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
211	19 31 0	41.77	163.84	1429			24.00	166.21	300	Q
211	19 32 0	38.62	163.76	1430	SM, WSP(<2.5), ER	8.2	21.26	166.29	300	Q
211	19 33 0	35.48	163.67	1431	SM, ME(<2.5), ER	8.2	18.90	166.37	300	Q
211	19 34 0	32.33	163.56	1432	SM, WSP(<2.5), ER	7.4	16.92	166.43	300	Q
211	19 35 0	29.18	163.45	1432	SM, ER	~ 6.5	15.26	166.48	300	Q
211	19 36 0	26.03	163.32	1433	SP, ER	6.2	13.87	166.51	300	Q
211	19 37 0	22.88	163.19	1434	VSP, ME, ER	6.0	12.69	166.53	300	Q
211	19 38 0	19.73	163.06	1434	VSP, ME, ER	5.8	11.67	166.53	300	Q
211	19 39 0	16.58	162.92	1434	VVSP, STV, ME, ER	5.7	10.75	166.52	300	Q
211	19 40 0	13.42	162.77	1435	VSP, STV, ME, ER	5.7	9.91	166.50	300	Q
211	19 41 0	10.27	162.63	1435	VSP, STV, ER	5.8	9.11	166.47	300	Q
211	19 42 0	7.11	162.48	1435	VSP(<4), STV, ER	6.0	8.32	166.42	300	Q
211	19 43 0	3.95	162.33	1435	VVSP(<4), STV, ER	6.3	7.51	166.36	300	Q
211	19 44 0	0.80	162.18	1435	VSP(<5), STV, ME, ER	6.5	6.66	166.28	300	Q
211	19 45 0	-2.36	162.03	1434	VSP, STV, ME	~ 7.0	5.73	166.19	300	Q
211	19 46 0	-5.52	161.88	1434	VSP, STV, ME	~ 7.0	4.69	166.07	300	Q
211	19 47 0	-8.67	161.73	1433	SM, ME, ER	6.8	3.48	165.93	300	Q
211	19 48 0	-11.83	161.58	1433	SM, ME, ER	6.0	2.05	165.75	300	Q
211	19 49 0	-14.99	161.44	1432	SM, ME, ER	6.0	0.35	165.55	300	Q
211	19 50 0	-18.14	161.30	1431	SM, ME, ER	6.0	-1.69	165.30	300	Q
211	19 51 0	-21.30	161.16	1430	SM, ME, ER	5.5	-4.11	165.03	300	Q
211	19 52 0	-24.46	161.03	1429	SM, ME, CE(1.5), ER	5.5	-6.90	164.73	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 31 JULY 1978 DAY 212

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#212#	6	3	0	-20.51	-173.72	1370			-5.91	176.66	300	
#212#	6	4	0	-17.30	-173.85	1369			-3.29	175.99	300	Q
#212#	6	5	0	-14.09	-173.99	1369	SM, ER	12.7	-0.98	175.36	300	Q
#212#	6	6	0	-10.88	-174.14	1369	SM, ER	13.0	1.01	174.79	300	Q
#212#	6	7	0	-7.67	-174.28	1369	SM	>10.0	2.73	174.30	300	Q
#212#	6	8	0	-4.47	-174.43	1370	SM	9.8	4.20	173.89	300	Q
#212#	6	9	0	-1.25	-174.58	1370	SM, ER	8.5	5.49	173.55	300	Q
#212#	6	10	0	1.96	-174.73	1370	SM, ER	7.9	6.63	173.29	300	Q
#212#	6	11	0	5.16	-174.88	1371	SM, ER	8.6	7.69	173.09	300	Q
#212#	6	12	0	8.37	-175.03	1371	SM	9.7	8.69	172.95	300	Q
#212#	6	13	0	11.58	-175.17	1372	SM	>10.0	9.68	172.87	300	Q
#212#	6	14	0	14.79	-175.31	1372	SM	>10.0	10.69	172.85	300	Q
#212#	6	15	0	17.99	-175.45	1373	SM	>10.0	11.76	172.88	300	Q
#212#	6	16	0	21.19	-175.59	1374	SM	>10.0	12.93	172.96	300	Q
#212#	6	17	0	24.39	-175.72	1375	SM	10.0	14.25	173.11	300	Q
#212#	6	18	0	27.59	-175.85	1376	SM	9.7	15.77	173.31	300	Q
#212#	6	19	0	30.79	-175.96	1377	SM, ME, CE(1.7), ER	9.2	17.54	173.57	300	Q
#212#	6	20	0	33.98	-176.07	1378	SM, ME, ER	8.6	19.60	173.88	300	Q
#212#	6	21	0	37.17	-176.17	1379	SM, ME, ER	7.9	21.98	174.24	300	Q
#212#	6	22	0	40.35	-176.25	1380	SM, ME, ER	7.5	24.67	174.62	300	

ORBIT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 31 JULY 1978 DAY 212

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
212	7	56	0	-22.66	157.86	1370			-6.19	163.24	300	Q
212	7	57	0	-19.45	157.73	1370	SM, ME, ER	6.5	-3.50	163.53	300	Q
212	7	58	0	-16.24	157.59	1369	SM, ME, ER	7.5	-1.17	163.80	300	Q
212	7	59	0	-13.04	157.45	1369	SM, ME, ER	9.0	0.81	164.04	300	Q
212	8	0	0	-9.83	157.31	1369	SM	>10.0	2.47	164.24	300	Q
212	8	1	0	-6.62	157.16	1370	SM	>10.0	3.88	164.39	300	Q
212	8	2	0	-3.41	157.01	1370	SM	>10.0	5.10	164.51	300	Q
212	8	3	0	-0.20	156.86	1370	SM	>10.0	6.17	164.59	300	Q
212	8	4	0	3.01	156.71	1370	SM	>10.0	7.14	164.64	300	Q
212	8	5	0	6.22	156.57	1371	SM	>10.0	8.05	164.66	300	Q
212	8	6	0	9.43	156.42	1371	SM	>10.0	8.94	164.64	300	Q
212	8	7	0	12.64	156.27	1372	SM	>10.0	9.84	164.59	300	Q
212	8	8	0	15.84	156.13	1373	SM	>10.0	10.79	164.52	300	Q
212	8	9	0	19.05	155.99	1373	SM	>10.0	11.81	164.40	300	Q
212	8	10	0	22.25	155.86	1374	SM	>10.0	12.95	164.25	300	Q
212	8	11	0	25.45	155.73	1375	SM	>10.0	14.26	164.05	300	Q
212	8	12	0	28.64	155.61	1376	SM	>10.0	15.79	163.81	300	Q
212	8	13	0	31.84	155.49	1377	SM	9.5	17.59	163.52	300	Q
212	8	14	0	35.03	155.39	1378	SM, ER	8.8	19.72	163.18	300	Q
212	8	15	0	38.22	155.29	1380	SM, ER	8.0	22.20	162.81	300	Q
212	8	16	0	41.40	155.21	1381	SM, ER	7.7	25.02	162.43	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 31 JULY 1978 DAY 212

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
212	18 16 0	38.82	-178.33	1430	SM, ME, ER	6.4	22.49	173.21	300	Q
212	18 17 0	35.67	-178.43	1431	SM, ME, ER	6.3	20.02	172.80	300	Q
212	18 18 0	32.52	-178.53	1432	SM, ME, ER	6.3	17.88	172.43	300	Q
212	18 19 0	29.37	178.65	1432	SM, ME, ER	6.4	16.06	172.11	300	Q
212	18 20 0	26.22	178.77	1433	SM, ME, ER	6.3	14.52	171.84	300	Q
212	18 21 0	23.07	-178.90	1434	SM, ME, CE(1.8), ER	6.0	13.20	171.62	300	Q
212	18 22 0	19.92	179.03	1434	SM, ME, CE(1.3), ER	5.5	12.06	171.44	300	Q
212	18 23 0	16.77	179.17	1434	SM, ME, CE(1.4), ER	5.0	11.04	171.31	300	Q
212	18 24 0	13.61	-179.32	1434	SM, ER	4.9	10.11	171.22	300	Q
212	18 25 0	10.46	-179.46	1435	SM, WSP, ER	5.0	9.23	171.16	300	Q
212	18 26 0	7.30	-179.61	1434	WSP, STV, ER	5.3	8.37	171.14	300	Q
212	18 27 0	4.15	179.76	1434	WSP, STV, ER	5.5	7.50	171.14	300	Q
212	18 28 0	0.99	-179.91	1434	SP(>2), STV, ER	5.1	6.58	171.18	300	Q
212	18 29 0	-2.17	179.94	1434	SP(>2), STV, ER	5.3	5.59	171.26	300	Q
212	18 30 0	-5.33	179.79	1433	SP(>3), STV, ER	5.2	4.49	171.37	300	Q
212	18 31 0	-8.48	179.64	1432	SM, ER	4.9	3.22	171.53	300	Q
212	18 32 0	-11.64	179.49	1432	SM, ME, CE(1.8), ER	4.8	1.74	171.73	300	Q
212	18 33 0	-14.80	179.35	1431	SM, ME, ER	4.8	0.02	171.97	300	Q
212	18 34 0	-17.96	179.21	1430	SM, ME, ER	4.8	-2.09	172.26	300	Q
212	18 35 0	-21.11	179.07	1429	SM, ME, CE(1.7), ER	4.9	-4.52	172.57	300	Q
212	18 36 0	-24.27	178.94	1428			7.30	172.90	300	Q

OBJECT: 3669 1515 I PASS SUMMARY FOR KWAJALEIN FOR 31 JULY 1978 DAY 212

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
212	20 9 0	40.93	153.21	1429			24.44	161.72	300	Q
212	20 10 0	37.78	153.13	1430	SM, ME, ER	7.0	21.76	162.07	300	Q
212	20 11 0	34.64	153.03	1431	SM, ME, CE(1.7), ER	6.8	19.42	162.40	300	Q
212	20 12 0	31.49	152.92	1432	SM, ME, ER	6.9	17.40	162.69	300	Q
212	20 13 0	28.34	152.81	1433	SM, ME, CE(1.6), ER	6.8	15.68	162.92	300	Q
212	20 14 0	25.19	152.68	1433	SM, ME, ER	6.0	14.22	163.11	300	Q
212	20 15 0	22.04	152.55	1434	SM, ME, ER	5.8	12.96	163.24	300	Q
212	20 16 0	18.89	152.41	1434	SP, ME, ER	6.0	11.84	163.32	300	Q
212	20 17 0	15.73	152.27	1434	SP(<4), STV, ER	6.5	10.83	163.36	300	Q
212	20 18 0	12.58	152.13	1434	VSP(<3), STV, ER	6.5	9.89	163.35	300	Q
212	20 19 0	9.42	151.98	1434	VSP(<2.5), STV, ER	6.3	8.98	163.29	300	Q
212	20 20 0	6.27	151.83	1434	VSP(<2.5), STV, ER	6.0	8.07	163.19	300	Q
212	20 21 0	3.11	151.68	1434	VSP(<2.5), STV, ER	5.9	7.13	163.04	300	Q
212	20 22 0	-0.05	151.53	1434	VSP(<3.5), STV, CE(1.4), ER	5.8	6.12	162.84	300	Q
212	20 23 0	-3.21	151.38	1433	SP(<5), STV, CE(1.5), ER	5.7	5.00	162.58	300	Q
212	20 24 0	-6.36	151.23	1433	OFF		3.73	162.26	300	Q
212	20 25 0	-9.52	151.08	1432	SM, ME, ER	4.8	2.26	161.86	300	Q
212	20 26 0	-12.68	150.94	1431			0.53	161.39	300	
212	20 27 0	-15.84	150.79	1431			-1.49	160.85	300	
212	20 28 0	-18.99	150.65	1430			-3.83	160.25	300	
212	20 29 0	-22.15	150.52	1429			-6.50	159.62	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 1 AUGUST 1978 DAY 213

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
213	6	40	0	-22.80	175.77	1370			-6.10	171.35	300	
213	6	41	0	-19.60	175.64	1370			-3.37	171.00	300	Q
213	6	42	0	-16.39	175.50	1370	SM, ME, ER	8.9	-1.03	170.68	300	Q
213	6	43	0	-13.18	175.36	1370	SM, ME	>10.0	0.95	170.40	300	Q
213	6	44	0	-9.98	175.22	1370	SM	>10.0	2.60	170.17	300	Q
213	6	45	0	-6.77	175.07	1370	SM	>10.0	3.99	169.97	300	Q
213	6	46	0	-3.56	174.92	1370	SM	9.9	5.18	169.81	300	Q
213	6	47	0	-0.35	174.77	1371	SM, ER	9.1	6.22	169.68	300	Q
213	6	48	0	2.86	174.62	1371	SM, ER	9.2	7.15	169.58	300	Q
213	6	49	0	6.07	174.48	1372	SM	9.7	8.03	169.50	300	Q
213	6	50	0	9.28	174.33	1372	SM	10.0	8.87	169.44	300	Q
213	6	51	0	12.48	174.18	1373	SM	>10.0	9.72	169.40	300	Q
213	6	52	0	15.69	174.04	1374	SM	>10.0	10.60	169.38	300	Q
213	6	53	0	18.89	173.90	1374	SM	>10.0	11.55	169.38	300	Q
213	6	54	0	22.09	173.77	1375	SM	>10.0	12.60	169.39	300	Q
213	6	55	0	25.29	173.64	1376	SM	>10.0	13.81	169.43	300	Q
213	6	56	0	28.49	173.52	1377	SM	>10.0	15.23	169.48	300	Q
213	6	57	0	31.68	173.40	1378	SM	10.4	16.91	169.56	300	Q
213	6	58	0	34.87	173.29	1380	SM, ER	9.1	18.92	169.65	300	Q
213	6	59	0	38.06	173.20	1381	SM, ER	8.1	21.30	169.77	300	Q
213	7	0	0	41.24	173.12	1382	SM, ER	7.8	24.05	169.90	300	Q
213	8	35	0	-18.54	147.09	1370			-4.77	157.86	300	
213	8	36	0	-15.34	146.95	1370			-2.35	158.38	300	
213	8	37	0	-12.13	146.81	1370			-0.22	158.87	300	Q
213	8	38	0	-8.92	146.66	1370	SM, ME, ER	8.3	1.64	159.30	300	Q
213	8	39	0	-5.71	146.51	1370	SM	9.2	3.26	159.66	300	Q
213	8	40	0	-2.50	146.36	1370	SM	>10.0	4.69	159.95	300	Q
213	8	41	0	0.71	146.22	1371	SM	>10.0	5.98	160.15	300	Q
213	8	42	0	3.92	146.07	1371	SM	>10.0	7.17	160.28	300	Q
213	8	43	0	7.13	145.92	1372	SM	>10.0	8.30	160.34	300	Q
213	8	44	0	10.34	145.77	1372	SM	>10.0	9.42	160.33	300	Q
213	8	45	0	13.54	145.63	1373	SM	>10.0	10.56	160.24	300	Q
213	8	46	0	16.75	145.49	1374	SM	10.3	11.76	160.08	300	Q
213	8	47	0	19.95	145.35	1375	SM, ER	10.2	13.06	159.85	300	Q
213	8	48	0	23.15	145.22	1376	SM, ER	10.0	14.51	159.54	300	Q
213	8	49	0	26.35	145.09	1377	SM, ER	11.5	16.14	159.15	300	Q
213	8	50	0	29.54	144.97	1378	SM, ER	10.6	18.01	158.69	300	Q
213	8	51	0	32.73	144.86	1379	SM, CE(1.6), ER	10.0	20.13	158.18	300	Q
213	8	52	0	35.92	144.75	1380			22.52	157.62	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 1 AUGUST 1978 DAY 213

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
213	20	49	0	33.78	142.40	1432	SM, ME, CE(1.7), ER	7.9	21.12	156.84	300	Q
213	20	50	0	30.64	142.29	1432	SM, ME, CE(1.8), ER	8.0	18.99	157.25	300	Q
213	20	51	0	27.49	142.17	1433	SM, ME	~ 7.5	17.09	157.60	300	Q
213	20	52	0	24.34	142.04	1433	SP, ME, STV, ER	6.8	15.41	157.88	300	Q
213	20	53	0	21.18	141.91	1434	SM, ME, ER	5.8	13.91	158.08	300	Q
213	20	54	0	18.03	141.77	1434	SM, ME, ER	5.6	12.55	158.20	300	Q
213	20	55	0	14.88	141.63	1434	SM, WSP(<2), ME	5.6	11.28	158.23	300	Q
213	20	56	0	11.72	141.48	1434	SM, SP(<1.6), ER	5.4	10.07	158.18	300	Q
213	20	57	0	8.57	141.33	1434	SM, SP(<1.7), ER	5.5	8.87	158.03	300	Q
213	20	58	0	5.41	141.18	1434	SM, SP(<1.7), ER	5.7	7.66	157.80	300	Q
213	20	59	0	2.25	141.03	1433	SM, SP(<1.8), ME, ER	5.7	6.38	157.47	300	Q
213	21	0	0	-0.91	140.88	1433	SM, SP(<2), ME, ER	5.5	5.00	157.05	300	Q
213	21	1	0	-4.07	140.73	1432	SM, ME, ER	5.5	3.48	156.53	300	Q
213	21	2	0	-7.22	140.58	1432	SM, ME, ER	5.5	1.79	155.92	300	Q
213	21	3	0	-10.38	140.44	1431	SM, ME, CE(1.7), ER	5.2	-0.13	155.23	300	Q
213	21	4	0	-13.54	140.29	1430			-2.27	154.47	300	Q
214	5	27	0	-13.32	-166.73	1370			-2.05	179.96	300	
214	5	28	0	-10.11	-166.87	1370			0.11	179.23	300	
214	5	29	0	-6.90	-167.02	1370			2.02	178.56	300	
214	5	30	0	-3.70	-167.17	1371			3.71	177.98	300	
214	5	31	0	-0.49	-167.32	1371			5.22	177.49	300	
214	5	32	0	2.72	-167.46	1372			6.58	177.10	300	
214	5	33	0	5.93	-167.61	1372			7.85	176.81	300	
214	5	34	0	9.14	-167.76	1373			9.06	176.60	300	
214	5	35	0	12.34	-167.91	1374	SM	10.0	10.25	176.49	300	Q
214	5	36	0	15.55	-168.05	1374	SM	9.0	11.47	176.46	300	Q
214	5	37	0	18.75	-168.19	1375	SM	8.5	12.77	176.51	300	Q
214	5	38	0	21.95	-168.32	1376	OFF		14.17	176.65	300	
214	5	39	0	25.15	-168.45	1377	SM	7.2	15.73	176.87	300	Q
214	5	40	0	28.34	-168.58	1378			17.49	177.17	300	
214	5	41	0	31.54	-168.69	1379			19.48	177.53	300	
214	5	42	0	34.73	-168.80	1381			21.72	177.95	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 2 AUGUST 1978 DAY 214

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
214	7	17	0	-25.09	165.26	1370			-7.82	166.58	300	
214	7	18	0	-21.88	165.13	1370			-4.88	166.62	300	
214	7	19	0	-18.68	165.00	1370			-2.32	166.66	300	
214	7	20	0	-15.47	164.86	1370			-0.15	166.70	300	Q
214	7	21	0	-12.26	164.72	1370			1.66	166.73	300	Q
214	7	22	0	-9.05	164.57	1370			3.18	166.75	300	Q
214	7	23	0	-5.85	164.42	1371			4.46	166.76	300	Q
214	7	24	0	-2.64	164.28	1371	SM, ER	11.0	5.56	166.77	300	Q
214	7	25	0	0.57	164.13	1371	SM, ER	11.0	6.54	166.76	300	Q
214	7	26	0	3.78	163.98	1372	SM, ER	10.7	7.43	166.75	300	Q
214	7	27	0	6.99	163.83	1373	SM	>10.0	8.27	166.73	300	Q
214	7	28	0	10.20	163.68	1373	SM	>10.0	9.10	166.70	300	Q
214	7	29	0	13.40	163.54	1374	SM	>10.0	9.94	166.66	300	Q
214	7	30	0	16.60	163.40	1375	SM	>10.0	10.83	166.60	300	Q
214	7	31	0	19.81	163.26	1376	SM	>10.0	11.79	166.54	300	Q
214	7	32	0	23.01	163.13	1377	SM, ME(<2)	10.0	12.88	166.46	300	Q
214	7	33	0	26.20	163.00	1378	SM, ME(<2)	9.1	14.14	166.36	300	Q
214	7	34	0	29.40	162.88	1379	SM, ER	8.0	15.63	166.25	300	Q
214	7	35	0	32.59	162.76	1380			17.40	166.11	300	Q
214	7	36	0	35.78	162.66	1381			19.52	165.95	300	Q
214	7	37	0	38.96	162.57	1382			22.01	165.77	300	
214	7	38	0	42.14	162.50	1384			24.87	165.59	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 2 AUGUST 1978 DAY 214

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#214#	19	30	0	43.38	160.56	1429	SP, STV, ME, ER	8.5	25.76	164.78	300	Q
#214#	19	31	0	40.24	160.49	1430	SP, STV, ER	8.2	22.84	164.96	300	Q
#214#	19	32	0	37.10	160.40	1431	SP, STV, ME, ER	7.5	20.28	165.13	300	Q
#214#	19	33	0	33.95	160.30	1432	SP, STV, ME, ER	7.2	18.09	165.28	300	Q
#214#	19	34	0	30.80	160.19	1432	SM, ME, CE(1.8), ER	6.5	16.25	165.40	300	Q
#214#	19	35	0	27.65	160.07	1433	SM, ME, CE(1.8), ER	6.4	14.70	165.50	300	Q
#214#	19	36	0	24.50	159.95	1433	SM, ME, ER	6.5	13.40	165.57	300	Q
#214#	19	37	0	21.35	159.81	1434	SM, ME, ER	6.5	12.28	165.62	300	Q
#214#	19	38	0	18.20	159.68	1434	SM, ME, ER	6.1	11.29	165.64	300	Q
#214#	19	39	0	15.04	159.54	1434	SM, ME, ER	6.0	10.39	165.63	300	Q
#214#	19	40	0	11.89	159.39	1434	SP(<3), STV, ER	5.7	9.55	165.61	300	Q
#214#	19	41	0	8.73	159.24	1434	SP(<3), STV, ER	5.5	8.74	165.57	300	Q
#214#	19	42	0	5.58	159.10	1433	SM, WSP(<2), ER	5.5	7.92	165.50	300	Q
#214#	19	43	0	2.42	158.95	1433	SM, WSP(<2), ER	5.5	7.07	165.41	300	Q
#214#	19	44	0	-0.74	158.79	1432	SM, WSP(<2)	> 5.0	6.15	165.29	300	Q
#214#	19	45	0	-3.90	158.64	1432			5.14	165.14	300	
#214#	19	46	0	-7.06	158.50	1431			3.98	164.95	300	
#214#	19	47	0	-10.22	158.35	1430			2.62	164.72	300	
#214#	19	48	0	-13.38	158.20	1429			1.01	164.45	300	
#214#	19	49	0	-16.54	158.06	1428			-0.92	164.12	300	
#214#	19	50	0	-19.69	157.92	1427			-3.19	163.75	300	
#214#	19	51	0	-22.85	157.78	1426			-5.84	163.34	300	
#215#	6	2	0	-22.01	-176.96	1370			-6.52	175.00	300	
#215#	6	3	0	-18.80	-177.09	1370			-3.79	174.41	300	
#215#	6	4	0	-15.60	-177.23	1370	SM, CE(1.8)	>10.0	-1.41	173.86	300	Q
#215#	6	5	0	-12.39	-177.37	1370	SM	>10.0	0.64	173.36	300	Q
#215#	6	6	0	-9.18	-177.52	1371	SM	>10.0	2.38	172.93	300	Q
#215#	6	7	0	-5.97	-177.66	1371	SM	9.8	3.86	172.57	300	Q
#215#	6	8	0	-2.76	-177.81	1372	SM, ER	8.9	5.14	172.28	300	Q
#215#	6	9	0	0.45	-177.96	1372	SM, ER	8.7	6.26	172.05	300	Q
#215#	6	10	0	3.65	-178.11	1373	SM	~ 8.5	7.28	171.87	300	Q
#215#	6	11	0	6.86	-178.26	1373	SM, ER	8.6	8.23	171.74	300	Q
#215#	6	12	0	10.07	-178.40	1374	SM	9.7	9.15	171.65	300	Q
#215#	6	13	0	13.27	-178.55	1375	SM	10.8	10.09	171.61	300	Q
#215#	6	14	0	16.47	-178.69	1376	SM	>10.0	11.06	171.61	300	Q
#215#	6	15	0	19.68	-178.83	1377	SM, ME(<2)	>10.0	12.11	171.65	300	Q
#215#	6	16	0	22.87	-178.96	1378	SM, ME(<2)	>10.0	13.29	171.73	300	Q
#215#	6	17	0	26.07	-179.09	1379	SM, ME(<2)	>1 .0	14.63	171.86	300	Q
#215#	6	18	0	29.26	-179.21	1380	SM, ME(<2)	>1 .0	16.20	172.04	300	Q
#215#	6	19	0	32.45	-179.33	1381	SM, ME(<2)	>10.0	18.04	172.27	300	Q
#215#	6	20	0	35.64	-179.43	1382			20.21	172.54	300	
#215#	6	21	0	38.83	-179.52	1384			22.72	172.84	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 3 AUGUST 1978 DAY 215

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
215	7	56	0	-20.95	154.49	1370			-5.21	161.75	300	
215	7	57	0	-17.74	154.36	1370	SM, ER	7.7	-2.67	162.13	300	Q
215	7	58	0	-14.54	154.22	1370	SM, ME(<2), ER	8.5	-0.47	162.48	300	Q
215	7	59	0	-11.33	154.07	1371	SM	>10.0	1.40	162.78	300	Q
215	8	0	0	-8.12	153.93	1371	SM	>10.0	2.98	163.04	300	Q
215	8	1	0	-4.91	153.78	1371	SM	>10.0	4.35	163.24	300	Q
215	8	2	0	-1.70	153.63	1372	SM	>10.0	5.54	163.38	300	Q
215	8	3	0	1.51	153.48	1372	SM	10.5	6.60	163.48	300	Q
215	8	4	0	4.71	153.33	1373	SM	10.0	7.59	163.54	300	Q
215	8	5	0	7.92	153.19	1374	SM	10.0	8.54	163.55	300	Q
215	8	6	0	11.13	153.04	1374	SM	9.9	9.48	163.52	300	Q
215	8	7	0	14.33	152.90	1375	SM	>10.0	10.44	163.44	300	Q
215	8	8	0	17.53	152.75	1376	SM	>10.0	11.48	163.32	300	Q
215	8	9	0	20.73	152.62	1377	SM	>10.0	12.61	163.15	300	Q
215	8	10	0	23.93	152.49	1378	SM	>10.0	13.90	162.93	300	Q
215	8	11	0	27.12	152.36	1379	SM	~ 9.5	15.38	162.66	300	Q
215	8	12	0	30.32	152.24	1380	SM, ME, CE(1.7), ER	7.2	17.11	162.32	300	Q
215	8	13	0	33.51	152.13	1382	SM, ME, ER	7.0	19.14	161.93	300	Q
215	8	14	0	36.69	152.03	1383	SM, ME, ER	6.8	21.49	161.50	300	Q
215	8	15	0	39.87	151.95	1384	SM, ME, ER	7.3	24.16	161.04	300	Q
215	18	15	0	40.40	178.40	1430			23.36	171.93	300	Q
215	18	16	0	37.25	178.31	1431			20.74	171.60	300	Q
215	18	17	0	34.11	178.21	1432	SP, ME, ER	5.8	18.48	171.30	300	Q
215	18	18	0	30.96	178.10	1432	SM, ME, ER	6.0	16.56	171.03	300	Q
215	18	19	0	27.81	177.98	1433	VSP, STV, ER	6.0	14.95	170.80	300	Q
215	18	20	0	24.66	177.86	1433	VSP, STV, ME, ER	5.8	13.59	170.61	300	Q
215	18	21	0	21.51	177.72	1433	VSP, STV, ME, ER	5.5	12.42	170.46	300	Q
215	18	22	0	18.36	177.59	1433	VSP(<3), ME	5.5	11.39	170.34	300	Q
215	18	23	0	15.20	177.45	1433	SM, SP(<2.5), ME, ER	5.5	10.47	170.25	300	Q
215	18	24	0	12.05	177.30	1433	SM, SP(<1.8), ME, ER	5.5	9.61	170.19	300	Q
215	18	25	0	8.89	177.15	1433	SM, SP(<1.7), ER	4.8	8.78	170.15	300	Q
215	18	26	0	5.73	177.01	1433	SM, ER	5.3	7.96	170.14	300	Q
215	18	27	0	2.57	176.86	1432	SM, ER	5.2	7.10	170.15	300	Q
215	18	28	0	-0.59	176.71	1432	SM, ER	5.5	6.20	170.18	300	Q
215	18	29	0	-3.75	176.56	1431	SM, ER	5.4	5.20	170.23	300	Q
215	18	30	0	-6.91	176.41	1430	SM, ER	5.4	4.06	170.32	300	Q
215	18	31	0	-10.07	176.26	1429	SM, ER	5.0	2.74	170.43	300	Q
215	18	32	0	-13.23	176.11	1428	SM, ME CE(1.3), ER	5.6	1.18	170.57	300	Q
215	18	33	0	-16.39	175.97	1427	SM, ME, ER	5.5	-0.68	170.75	300	Q
215	18	34	0	-19.54	175.83	1426	SM, ME, ER	5.0	-2.90	170.95	300	
215	18	35	0	-22.70	175.69	1425	SM, ME, ER	4.5	-5.48	171.17	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 4 AUGUST 1978 DAY 216

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
216	6 39 0	-24.26	172.53	1370	SM, ME(<2)	7.5	-7.15	169.93	300	Q
216	6 40 0	-21.06	172.40	1370	SM, ME(<2), CE(1.6), ER	9.0	-4.29	169.70	300	Q
216	6 41 0	-17.86	172.27	1370	SM, ME(<2)	>10.0	-1.80	169.48	300	Q
216	6 42 0	-14.65	172.13	1371	SM, ME(<2), CE(1.6)	>10.0	0.30	169.29	300	Q
216	6 43 0	-11.44	171.98	1371	SM	>10.0	2.05	169.13	300	Q
216	6 44 0	-8.23	171.84	1371	SM	>10.0	3.51	168.99	300	Q
216	6 45 0	-5.03	171.69	1372	SM	>10.0	4.75	168.88	300	Q
216	6 46 0	-1.82	171.54	1372	SM	>10.0	5.82	168.78	300	Q
216	6 47 0	1.39	171.39	1373	SM	10.3	6.77	168.70	300	Q
216	6 48 0	4.60	171.24	1374	SM	>10.0	7.65	168.64	300	Q
216	6 49 0	7.80	171.10	1375	SM	>10.0	8.48	168.59	300	Q
216	6 50 0	11.01	170.95	1375	SM	>10.0	9.30	168.55	300	Q
216	6 51 0	14.21	170.81	1376	SM	>10.0	10.15	168.51	300	Q
216	6 52 0	17.41	170.67	1377	SM	>10.0	11.04	168.49	300	Q
216	6 53 0	20.61	170.53	1378	SM	>10.0	12.02	168.47	300	Q
216	6 54 0	23.81	170.40	1379	SM, ME(<2)	>10.0	13.13	168.47	300	Q
216	6 55 0	27.00	170.27	1380	SM	10.2	14.42	168.47	300	Q
216	6 56 0	30.19	170.15	1382	SM, ER	9.5	15.95	168.47	300	Q
216	6 57 0	33.38	170.04	1383	SM, ME(<2), ER	8.4	17.78	168.49	300	Q
216	6 58 0	36.57	169.94	1384	SM, ME(<2), ER	~ 8.0	19.96	168.51	300	Q
216	6 59 0	39.75	169.85	1386	SM, ER	7.5	22.52	168.54	300	Q
216	7 0 0	42.93	169.78	1387			25.45	168.58	300	
216	8 36 0	-13.59	143.57	1371			-1.89	156.46	300	Q
216	8 37 0	-10.38	143.43	1371			0.18	156.97	300	Q
216	8 38 0	-7.17	143.28	1372	SM	9.1	2.02	157.42	300	Q
216	8 39 0	-3.97	143.13	1372	SM	10.2	3.66	157.80	300	Q
216	8 40 0	-0.76	142.99	1373	SM	>10.0	5.12	158.09	300	Q
216	8 41 0	2.45	142.84	1373	SM	>10.0	6.47	158.29	300	Q
216	8 42 0	5.66	142.69	1374	SM	>10.0	7.74	158.41	300	Q
216	8 43 0	8.86	142.54	1375	SM	>10.0	8.97	158.44	300	Q
216	8 44 0	12.07	142.40	1376	SM	>10.0	10.20	158.38	300	Q
216	8 45 0	15.27	142.25	1377	SM	>10.0	11.48	158.24	300	Q
216	8 46 0	18.47	142.11	1378	SM	>10.0	12.84	158.02	300	Q
216	8 47 0	21.67	141.98	1379	SM	>10.0	14.32	157.71	300	WS
216	8 48 0	24.86	141.85	1380	SM	>10.0	15.97	157.32	300	SC
216	8 49 0	28.06	141.72	1381			17.83	156.86	300	
216	8 50 0	31.25	141.61	1382			19.90	156.34	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 4 AUGUST 1978 DAY 216

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#216#	18	52	0	42.65	167.84	1430			24.72	167.78	300	
#216#	18	53	0	39.51	167.77	1431			21.88	167.74	300	Q
#216#	18	54	0	36.36	167.68	1431	WSP, STV, ME	6.0	19.43	167.71	300	Q
#216#	18	55	0	33.22	167.58	1432	WSP, STV, ME	5.6	17.35	167.68	300	Q
#216#	18	56	0	30.07	167.47	1432	WSP, STV, ER	5.8	15.62	167.65	300	Q
#216#	18	57	0	26.92	167.34	1433	WSP, STV, ER	6.0	14.17	167.62	300	Q
#216#	18	58	0	23.77	167.22	1433	SP, STV, ER	5.9	12.95	167.59	300	Q
#216#	18	59	0	20.62	167.08	1433	VSP, STV, ER	5.6	11.90	167.56	300	Q
#216#	19	0	0	17.46	166.94	1433	VVSP, STV, ME, ER	5.2	10.97	167.53	300	Q
#216#	19	1	0	14.31	166.80	1433	VVSP, STV, ME, ER	5.2	10.12	167.50	300	Q
#216#	19	2	0	11.15	166.66	1433	VVSP, STV, ME, ER	5.2	9.32	167.47	300	Q
#216#	19	3	0	7.99	166.51	1432	VVSP, STV, ME, ER	5.2	8.54	167.43	300	Q
#216#	19	4	0	4.83	166.36	1432	VVSP, STV, ME, ER	5.8	7.75	167.39	300	Q
#216#	19	5	0	1.68	166.21	1431	VVSP, STV, ME, ER	5.9	6.93	167.34	300	Q
#216#	19	6	0	-1.48	166.06	1431	VVSP, STV, ME, ER	6.0	6.04	167.29	300	Q
#216#	19	7	0	-4.65	165.91	1430	VVSP, STV, ME, ER	6.0	5.05	167.23	300	Q
#216#	19	8	0	-7.81	165.76	1429	SP, RSP, STV, ER	6.0	3.91	167.16	300	Q
#216#	19	9	0	-10.97	165.61	1428	SM, SP(<1.7), RSP, ER	6.0	2.57	167.07	300	Q
#216#	19	10	0	-14.13	165.47	1427	SM, ME, ER	5.7	0.98	166.97	300	Q
#216#	19	11	0	-17.29	165.32	1426	SM, ME, ER	4.9	-0.94	166.86	300	Q
#216#	19	12	0	-20.45	165.19	1425	SM, ME, ER	4.0	-3.23	166.72	300	Q
#216#	19	13	0	-23.61	165.05	1423	SM, ME, ER	4.1	-5.91	166.57	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 5 AUGUST 1978 DAY 217

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
217	5	26	0	-14.75	-169.96	1371			-2.27	177.95	300	Q
217	5	27	0	-11.54	-170.10	1372	SM	>10.0	-0.10	177.25	300	Q
217	5	28	0	-8.34	-170.25	1372	SM	9.6	1.80	176.63	300	Q
217	5	29	0	-5.13	-170.40	1373	SM	9.2	3.46	176.09	300	Q
217	5	30	0	-1.92	-170.55	1373	SM	8.2	4.91	175.64	300	Q
217	5	31	0	1.29	-170.69	1374	SM	8.2	6.21	175.28	300	Q
217	5	32	0	4.49	-170.84	1375	SM	9.2	7.39	175.00	300	Q
217	5	33	0	7.70	-170.99	1375	SM	10.2	8.50	174.80	300	Q
217	5	34	0	10.90	-171.14	1376	SM	>10.0	9.59	174.68	300	Q
217	5	35	0	14.10	-171.28	1377	SM	>10.0	10.68	174.63	300	Q
217	5	36	0	17.30	-171.42	1378	SM	>10.0	11.83	174.65	300	Q
217	5	37	0	20.50	-171.56	1379	SM	>10.0	13.07	174.74	300	Q
217	5	38	0	23.70	-171.69	1380	SM	>10.0	14.45	174.90	300	Q
217	5	39	0	26.89	-171.82	1382	SM, ME(<2), ER	9.3	16.01	175.14	300	Q
217	5	40	0	30.08	-171.94	1383	SM, ME(<2), ER	7.7	17.80	175.44	300	Q
217	5	41	0	33.27	-172.05	1384	SM, ER	6.7	19.86	175.80	300	Q
217	5	42	0	36.45	-172.15	1385	SM, ER	6.2	22.20	176.21	300	Q
217	7	17	0	-23.30	161.90	1371	SM, ME(<2), ER	8.0	-6.33	165.11	300	Q
217	7	18	0	-20.10	161.76	1371	SM, ME(<2), ER	7.7	-3.59	165.26	300	Q
217	7	19	0	-16.90	161.63	1371	SM, ME(<2), ER	8.3	-1.23	165.41	300	Q
217	7	20	0	-13.69	161.48	1371	SM, ME(<2), CE(1.8), ER	9.0	0.76	165.54	300	Q
217	7	21	0	-10.48	161.34	1372	SM	>10.0	2.43	165.65	300	Q
217	7	22	0	-7.28	161.19	1372	SM	>10.0	3.83	165.73	300	Q
217	7	23	0	-4.07	161.05	1373	SM	>10.0	5.02	165.79	300	Q
217	7	24	0	-0.86	160.90	1373	SM	>10.0	6.07	165.83	300	Q
217	7	25	0	2.35	160.75	1374	SM	>10.0	7.01	165.85	300	Q
217	7	26	0	5.55	160.60	1375	SM	>10.0	7.89	165.85	300	Q
217	7	27	0	8.76	160.45	1376	SM	>10.0	8.74	165.83	300	Q
217	7	28	0	11.96	160.31	1377	SM	>10.0	9.59	165.79	300	Q
217	7	29	0	15.16	160.16	1378	SM	>10.0	10.47	165.74	300	Q
217	7	30	0	18.36	160.02	1379	SM	>10.0	11.42	165.66	300	Q
217	7	31	0	21.56	159.89	1380	SM	>10.0	12.47	165.56	300	Q
217	7	32	0	24.76	159.76	1381	SM	9.4	13.67	165.43	300	Q
217	7	33	0	27.95	159.63	1382	SM, ER	8.8	15.07	165.27	300	Q
217	7	34	0	31.14	159.52	1383	SM, ME(<2), CE(1.7), ER	7.7	16.74	165.07	300	Q
217	7	35	0	34.32	159.41	1385	SM, ME, ER	6.6	18.72	164.84	300	Q
217	7	36	0	37.51	159.31	1386	SM, ME, ER	6.1	21.06	164.59	300	Q
217	7	37	0	40.69	159.23	1387	SM, ER	6.0	23.76	164.31	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 5 AUGUST 1978 DAY 217

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
							23.96	175.27	300	
217	17 37 0	39.64	-174.32	1431		4.2	21.36	174.77	300	Q
217	17 38 0	36.50	-174.41	1431	SM	4.5	19.07	174.30	300	Q
217	17 39 0	33.35	-174.51	1432	SM	5.1	17.09	173.88	300	Q
217	17 40 0	30.20	-174.63	1432	SM	6.0	15.39	173.52	300	Q
217	17 41 0	27.05	-174.75	1432	SM	6.1	13.93	173.21	300	Q
217	17 42 0	23.90	-174.87	1433	WSP(NP)	6.0	12.66	172.97	300	Q
217	17 43 0	20.75	-175.01	1433	SP(>3), STV, ME	~ 6.0	11.53	172.79	300	Q
217	17 44 0	17.60	-175.15	1432	VSP(>2), STV, ER	~ 6.0	10.51	172.66	300	Q
217	17 45 0	14.44	-175.29	1432	VVSP(>1.5), STV, ER	~ 6.0	9.55	172.57	300	Q
217	17 46 0	11.28	-175.43	1432	VVSP(>1.5), STV, ME, ER	~ 6.0	8.62	172.54	300	Q
217	17 47 0	8.12	-175.58	1432	VVSP(>1.5), STV, ME, ER	~ 6.0	7.68	172.55	300	Q
217	17 48 0	4.97	-175.73	1431	VVSP(>1.5), STV, ME, ER	~ 6.0	6.71	172.61	300	Q
217	17 49 0	1.81	-175.88	1430	VSP(>1.5), STV, ER	5.5	5.66	172.72	300	Q
217	17 50 0	-1.35	-176.03	1430	VVSP, STV, ER	~ 5.0	4.51	172.88	300	Q
217	17 51 0	-4.52	-176.18	1429	VSP, STV, ER	~ 5.0	3.19	173.10	300	Q
217	17 52 0	-7.68	-176.33	1428	SP, STV, ER	4.7	1.67	173.38	300	Q
217	17 53 0	-10.84	-176.48	1427	SP(>2.5), STV, ER	4.6	-0.11	173.71	300	Q
217	17 54 0	-14.00	-176.62	1426	WSP(NP), STV, ER	4.0	-2.19	174.10	300	Q
217	17 55 0	-17.16	-176.76	1425	SM, ER	4.0	-4.61	174.52	300	Q
217	17 56 0	-20.32	-176.90	1423	SM, ER					

						5.0	24.56	163.47	300	
217	19 30 0	41.75	157.22	1430	SM, ER	4.9	21.81	163.73	300	Q
217	19 31 0	38.60	157.14	1431	SM, ER	5.0	19.42	163.97	300	Q
217	19 32 0	35.46	157.05	1432	SM, WSP, ER	5.0	17.39	164.19	300	Q
217	19 33 0	32.31	156.94	1432	SP, STV, ME, ER	5.5	15.67	164.36	300	Q
217	19 34 0	29.16	156.83	1432	SP, STV, ME, ER	5.5	14.21	164.49	300	Q
217	19 35 0	26.01	156.70	1432	SP, STV, ME, CE(1.7), ER	5.6	12.97	164.59	300	Q
217	19 36 0	22.86	156.57	1433	VSP, STV, ER	5.6	11.88	164.65	300	Q
217	19 37 0	19.71	156.44	1433	VSP, STV, ER	5.5	10.91	164.68	300	Q
217	19 38 0	16.55	156.30	1432	VVSP, STV, ME, ER	5.7	10.02	164.67	300	Q
217	19 39 0	13.40	156.16	1432	VSP, STV, ER	5.9	9.16	164.63	300	Q
217	19 40 0	10.24	156.01	1432	SP(<3), STV, ER	6.0	8.31	164.56	300	Q
217	19 41 0	7.08	155.86	1431	SP(<3), STV, ER	5.9	7.44	164.46	300	Q
217	19 42 0	3.92	155.71	1431	SP(<3), STV, ER	5.7	6.52	164.32	300	Q
217	19 43 0	0.76	155.56	1430	SP(<4), STV, ER	5.9	5.50	164.14	300	Q
217	19 44 0	-2.40	155.41	1429	SP, STV, ER	6.0	4.36	163.91	300	Q
217	19 45 0	-5.56	155.26	1429	SM, WSP, ER	5.9	3.04	163.63	300	Q
217	19 46 0	-8.72	155.11	1428	SM, WSP, ER	5.5	1.48	163.29	300	Q
217	19 47 0	-11.88	154.97	1427	SM, ME, WSP, ER	4.8	-0.37	162.89	300	Q
217	19 48 0	-15.04	154.82	1425	SM, ME, ER	4.2	-2.55	162.43	300	Q
217	19 49 0	-18.21	154.68	1424	SM, ME, ER	4.3	-5.08	161.92	300	Q
217	19 50 0	-21.37	154.54	1423	SM, ME, ER					

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 6 AUGUST 1978 DAY 218

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
218	6	1	0	-23.45	179.81	1371	SM, ER	6.8	-7.23	173.44	300	Q
218	6	2	0	-20.24	179.67	1371	SM, ER	6.9	-4.39	172.95	300	Q
218	6	3	0	-17.04	179.54	1372	SM, ER	7.4	-1.91	172.48	300	Q
218	6	4	0	-13.83	179.40	1372	SM	>10.0	0.21	172.07	300	Q
218	6	5	0	-10.63	179.25	1373	SM	>10.0	2.00	171.70	300	Q
218	6	6	0	-7.42	179.10	1373	SM	>10.0	3.50	171.40	300	Q
218	6	7	0	-4.21	178.96	1374	SM	>10.0	4.79	171.15	300	Q
218	6	8	0	-1.01	178.81	1374	SM	>10.0	5.91	170.96	300	Q
218	6	9	0	2.20	178.66	1375	SM	>10.0	6.91	170.80	300	Q
218	6	10	0	5.40	178.51	1376	SM	>10.0	7.83	170.68	300	Q
218	6	11	0	8.61	178.36	1377	SM	>10.0	8.71	170.60	300	Q
218	6	12	0	11.81	178.22	1378	SM	>10.0	9.59	170.55	300	Q
218	6	13	0	15.01	178.07	1379	SM	>10.0	10.49	170.53	300	Q
218	6	14	0	18.21	177.93	1380	SM	>10.0	11.45	170.54	300	Q
218	6	15	0	21.41	177.80	1381	SM	9.2	12.51	170.57	300	Q
218	6	16	0	24.60	177.67	1382	SM, ER	8.2	13.72	170.65	300	Q
218	6	17	0	27.79	177.54	1383	SM, ER	7.7	15.12	170.75	300	Q
218	6	18	0	30.98	177.43	1385	SM, ER	7.1	16.77	170.90	300	Q
218	6	19	0	34.17	177.32	1386	SM, ER	6.7	18.73	171.08	300	Q
218	6	20	0	37.35	177.22	1387	SM, ER	6.1	21.04	171.29	300	Q
218	6	21	0	40.53	177.14	1389	SM, ER	6.0	23.71	171.52	300	Q
218	7	56	0	-19.19	151.12	1372	SM, ER	7.7	-4.37	160.20	300	Q
218	7	57	0	-15.98	150.98	1372	SM, ER	7.8	-1.96	160.65	300	Q
218	7	58	0	-12.77	150.84	1372	SM, ER	8.5	0.12	161.07	300	Q
218	7	59	0	-9.57	150.70	1373	SM	10.5	1.91	161.42	300	Q
218	8	0	0	-6.36	150.55	1373	SM	>10.0	3.45	161.71	300	Q
218	8	1	0	-3.16	150.40	1374	SM	>10.0	4.79	161.94	300	Q
218	8	2	0	0.05	150.25	1375	SM	10.4	5.98	162.11	300	Q
218	8	3	0	3.26	150.10	1376	SM	~10.5	7.07	162.21	300	Q
218	8	4	0	6.46	149.95	1376	SM	~10.5	8.10	162.26	300	Q
218	8	5	0	9.67	149.81	1377	SM	~10.5	9.10	162.26	300	Q
218	8	6	0	12.87	149.66	1378	SM	10.5	10.12	162.20	300	Q
218	8	7	0	16.07	149.52	1379	SM	>10.0	11.18	162.08	300	Q
218	8	8	0	19.27	149.38	1380	SM	>10.0	12.33	161.90	300	Q
218	8	9	0	22.46	149.25	1381	SM	~ 9.8	13.62	161.67	300	Q
218	8	10	0	25.65	149.12	1383	SM, ER	8.7	15.08	161.36	300	Q
218	8	11	0	28.84	149.00	1384	SM, ER	7.7	16.77	160.99	300	Q
218	8	12	0	32.03	148.88	1385	SM, ER	7.0	18.73	160.56	300	Q
218	8	13	0	35.22	148.78	1386	SM, ER	6.3	20.98	160.07	300	Q
218	8	14	0	38.40	148.68	1388	SM, ER	6.0	23.53	159.56	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 6 AUGUST 1978 DAY 218

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#218#	18	14	0	41.93	175.13	1430			24.38	170.68	300	
#218#	18	15	0	38.78	175.05	1431	SM, ER	4.9	21.61	170.44	300	Q
#218#	18	16	0	35.64	174.96	1431	SM, ER	4.9	19.21	170.21	300	Q
#218#	18	17	0	32.49	174.85	1431	SM, ME, ER	4.8	17.17	170.00	300	Q
#218#	18	18	0	29.34	174.74	1432	SP, STV, ER	4.8	15.47	169.82	300	Q
#218#	18	19	0	26.19	174.61	1432	SP, ME, STV, ER	5.0	14.03	169.67	300	Q
#218#	18	20	0	23.04	174.48	1432	SP, ME, STV, ER	4.9	12.82	169.55	300	Q
#218#	18	21	0	19.88	174.35	1432	VSP, STV, ME, ER	5.0	11.76	169.46	300	Q
#218#	18	22	0	16.73	174.21	1432	VSP(<3), STV, ER	5.0	10.83	169.38	300	Q
#218#	18	23	0	13.57	174.07	1431	VSP(<2.5), STV, ER	4.6	9.97	169.32	300	Q
#218#	18	24	0	10.41	173.92	1431	VSP(<2), STV, ER	4.6	9.15	169.28	300	Q
#218#	18	25	0	7.26	173.77	1430	SP(<2), STV, ER	4.9	8.35	169.25	300	Q
#218#	18	26	0	4.09	173.62	1430	SM, WSP(<2), ER	5.5	7.54	169.23	300	Q
#218#	18	27	0	0.93	173.47	1429	SP(<2), STV, ER	5.7	6.69	169.23	300	Q
#218#	18	28	0	-2.23	173.32	1428	SP(<2), STV, ER	5.7	5.76	169.24	300	Q
#218#	18	29	0	-5.39	173.17	1427	SP(<2), STV, ER	4.9	4.73	169.27	300	Q
#218#	18	30	0	-8.55	173.02	1426	SP(<2.5), STV, ME, ER	4.4	3.53	169.32	300	Q
#218#	18	31	0	-11.72	172.88	1425	SM, ME, ER	4.3	2.12	169.38	300	Q
#218#	18	32	0	-14.88	172.73	1424			0.44	169.46	300	
#218#	18	33	0	-18.04	172.59	1423			-1.57	169.55	300	
#218#	18	34	0	-21.20	172.45	1422			-3.96	169.66	300	
#218#	18	35	0	-24.36	172.32	1420			-6.73	169.77	300	
#219#	4	50	0	-7.52	-162.98	1374	SM	9.5	0.91	-178.22	300	Q
#219#	4	51	0	-4.32	-163.13	1375	SM, ER	8.8	2.80	-178.89	300	Q
#219#	4	52	0	-1.11	-163.28	1375	SM, ER	8.3	4.51	-179.48	300	Q
#219#	4	53	0	2.09	-163.43	1376	SM, ER	8.4	6.07	-179.97	300	Q
#219#	4	54	0	5.30	-163.58	1377	SM, ER	9.1	7.51	179.65	300	Q
#219#	4	55	0	8.50	-163.72	1378	SM	10.2	8.89	179.36	300	Q
#219#	4	56	0	11.70	-163.87	1379	SM	>10.0	10.24	179.18	300	Q
#219#	4	57	0	14.90	-164.01	1380	SM	>10.0	11.60	179.10	300	SC
#219#	4	58	0	18.10	-164.15	1381	SM	>10.0	13.01	179.12	300	Q
#219#	4	59	0	21.30	-164.29	1382	SM	>10.0	14.52	179.23	300	Q
#219#	5	0	0	24.49	-164.42	1383	SM	>10.0	16.17	179.44	300	Q
#219#	5	1	0	27.68	-164.55	1385	SM	10.1	17.99	179.72	300	Q
#219#	5	2	0	30.87	-164.66	1386			20.01	-179.92	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 7 AUGUST 1978 DAY 219

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#219#	6 38 0	-25.69	169.30	1371	SM, ME(<2), ER	6.5	-8.37	168.47	300	Q
#219#	6 39 0	-22.49	169.17	1372	SM, ER	7.0	-5.36	168.35	300	Q
#219#	6 40 0	-19.28	169.03	1372	SM, ER	7.0	-2.72	168.25	300	Q
#219#	6 41 0	-16.08	168.89	1372	SM, ER	7.5	-0.48	168.15	300	Q
#219#	6 42 0	-12.87	168.75	1373	SM, ER	~10.0	1.39	168.07	300	Q
#219#	6 43 0	-9.67	168.61	1374	SM, ER	12.0	2.96	168.00	300	Q
#219#	6 44 0	-6.46	168.46	1374	SM, ER	12.4	4.27	167.94	300	Q
#219#	6 45 0	-3.26	168.31	1375	SM, ER	12.0	5.39	167.89	300	Q
#219#	6 46 0	-0.05	168.16	1376	SM, ER	12.0	6.38	167.85	300	Q
#219#	6 47 0	3.15	168.01	1376	SM, ER	11.6	7.27	167.80	300	Q
#219#	6 48 0	6.36	167.87	1377	SM, ER	11.5	8.11	167.76	300	Q
#219#	6 49 0	9.56	167.72	1378	SM, ER	11.4	8.93	167.73	300	Q
#219#	6 50 0	12.76	167.57	1379	SM, ER	12.0	9.75	167.69	300	Q
#219#	6 51 0	15.96	167.43	1380	SM, ER	12.2	10.61	167.65	300	Q
#219#	6 52 0	19.16	167.29	1381	SM, ER	12.0	11.54	167.62	300	Q
#219#	6 53 0	22.35	167.16	1383	SM, ER	10.8	12.58	167.58	300	Q
#219#	6 54 0	25.55	167.03	1384	SM, ER	10.0	13.77	167.53	300	Q
#219#	6 55 0	28.74	166.91	1385	SM, ER	9.1	15.18	167.48	300	Q
#219#	6 56 0	31.92	166.79	1386	SM, ER	8.0	16.85	167.43	300	Q
#219#	6 57 0	35.11	166.69	1388			18.86	167.37	300	Q
#219#	6 58 0	38.29	166.59	1389			21.24	167.31	300	Q
#219#	6 59 0	41.46	166.51	1390			24.00	167.25	300	Q
#219#	8 36 0	-11.81	140.20	1373			-1.47	154.28	300	Q
#219#	8 37 0	-8.61	140.05	1374	SM, ER	7.7	0.58	154.79	300	Q
#219#	8 38 0	-5.40	139.90	1374	SM	>10.0	2.42	155.24	300	Q
#219#	8 39 0	-2.20	139.76	1375	SM	>10.0	4.09	155.60	300	Q
#219#	8 40 0	1.01	139.61	1376	SM	10.5	5.62	155.88	300	Q
#219#	8 41 0	4.21	139.46	1377	SM	~10.5	7.05	156.06	300	Q
#219#	8 42 0	7.42	139.31	1378	SM	>10.0	8.43	156.15	300	Q
#219#	8 43 0	10.62	139.16	1379	SM	>10.0	9.79	156.14	300	Q
#219#	8 44 0	13.82	139.02	1380	SM	>10.0	11.17	156.04	300	Q
#219#	8 45 0	17.02	138.88	1381	SM	>10.0	12.61	155.84	300	Q
#219#	8 46 0	20.22	138.74	1382	SM	>10.0	14.16	155.55	300	Q
#219#	8 47 0	23.41	138.61	1383	SM	>10.0	15.85	155.18	300	Q
#219#	8 48 0	26.60	138.48	1384	SM, WSP(<2)	>10.0	17.71	154.73	300	Q
#219#	8 49 0	29.79	138.36	1386			19.76	154.23	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 7 AUGUST 1978 DAY 219

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
219	18	52	0	41.02	164.50	1430	SM, ME, CE(1.8), ER	6.9	23.27	166.49	300	Q
219	18	53	0	37.88	164.42	1431	SM, ME, ER	6.2	20.63	166.56	300	Q
219	18	54	0	34.73	164.32	1431	SM, ME, CE(1.7), ER	6.0	18.37	166.61	300	Q
219	18	55	0	31.58	164.22	1431	SP, STV, ME, ER	5.9	16.47	166.65	300	Q
219	18	56	0	28.43	164.10	1431	VSP, STV, ME, ER	5.6	14.89	166.68	300	Q
219	18	57	0	25.28	163.97	1431	VSP, STV, ME, CE(1.5), ER	5.2	13.56	166.70	300	Q
219	18	58	0	22.13	163.84	1431	SP, STV, ME, ER	5.3	12.42	166.71	300	Q
219	18	59	0	18.97	163.71	1431	SP, STV, ME, ER	5.4	11.43	166.70	300	Q
219	19	0	0	15.82	163.57	1431	SP(<3), ME, CE(1.8)	5.7	10.54	166.69	300	Q
219	19	1	0	12.66	163.42	1430	SP(<2), ME, ER	5.9	9.71	166.66	300	Q
219	19	2	0	9.50	163.28	1430	SP(<2), ME, ER	5.2	8.91	166.63	300	Q
219	19	3	0	6.34	163.13	1429	SP(<2), ER	4.7	8.12	166.58	300	Q
219	19	4	0	3.18	162.98	1429	SM, ER	4.8	7.31	166.52	300	Q
219	19	5	0	0.02	162.83	1428	SP(<2), ER	4.6	6.44	166.44	300	Q
219	19	6	0	-3.15	162.68	1427	SP(<2.5), ER	4.4	5.48	166.35	300	Q
219	19	7	0	-6.31	162.53	1426	SP(<2), ME, ER	4.2	4.40	166.23	300	Q
219	19	8	0	-9.47	162.38	1425	SP(<2), ME, ER	4.2	3.14	166.09	300	Q
219	19	9	0	-12.64	162.23	1424	SP(<2), ME, ER	4.2	1.64	165.93	300	Q
219	19	10	0	-15.80	162.09	1423	SM, ME, ER	4.3	-0.15	165.73	300	Q
219	19	11	0	-18.96	161.95	1421	SM, ME, ER	5.0	-2.30	165.49	300	Q
219	19	12	0	-22.13	161.81	1420	SM, ME, ER	5.0	-4.83	165.23	300	Q
219	19	13	0	-25.29	161.68	1418			-7.74	164.95	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 8 AUGUST 1978 DAY 220

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
220	5	24	0	-19.37	-173.05	1373	SM, ER	12.8	-5.08	176.84	300	Q
220	5	25	0	-16.17	-173.19	1373	OFF		-2.56	176.16	300	Q
220	5	26	0	-12.96	-173.34	1374	SM, ER	12.3	-0.35	175.53	300	Q
220	5	27	0	-9.76	-173.48	1374	SM	>10.0	1.56	174.96	300	Q
220	5	28	0	-6.55	-173.63	1375	SM	10.5	3.20	174.48	300	Q
220	5	29	0	-3.35	-173.78	1376	SM	10.0	4.62	174.07	300	Q
220	5	30	0	-0.14	-173.92	1377	SM, ER	9.5	5.87	173.75	300	Q
220	5	31	0	3.06	-174.07	1377	SM, ER	9.6	6.99	173.50	300	Q
220	5	32	0	6.27	-174.22	1378	SM	10.0	8.04	173.31	300	Q
220	5	33	0	9.47	-174.37	1379	SM	10.6	9.04	173.19	300	Q
220	5	34	0	12.67	-174.51	1380	SM	>10.0	10.04	173.12	300	Q
220	5	35	0	15.87	-174.66	1382	SM	>10.0	11.07	173.11	300	Q
220	5	36	0	19.06	-174.80	1383	SM	>10.0	12.18	173.16	300	Q
220	5	37	0	22.26	-174.93	1384	SM	>10.0	13.40	173.27	300	Q
220	5	38	0	25.45	-175.06	1385	SM	>10.0	14.78	173.43	300	Q
220	5	39	0	28.64	-175.18	1386	SM	>10.0	16.37	173.66	300	Q
220	5	40	0	31.82	-175.30	1388	SM	10.5	18.23	173.95	300	Q
220	5	41	0	35.01	-175.40	1389	SM, ME(<2), ER	9.5	20.38	174.28	300	Q
220	5	42	0	38.18	-175.50	1390	SM, ER	8.2	22.84	174.66	300	Q
220	7	16	0	-24.71	158.66	1372	SM, ME(<2), ER	7.0	-7.98	163.43	300	Q
220	7	17	0	-21.51	158.53	1372	SM, ER	7.5	-5.07	163.69	300	Q
220	7	18	0	-18.31	158.39	1373	SM, ER	7.7	-2.52	163.96	300	Q
220	7	19	0	-15.11	158.25	1373	OFF		-0.33	164.19	300	Q
220	7	20	0	-11.90	158.11	1374	SM	>10.0	1.51	164.40	300	Q
220	7	21	0	-8.69	157.96	1375	SM	>10.0	3.06	164.57	300	Q
220	7	22	0	-5.49	157.82	1375	SM	>10.0	4.38	164.70	300	Q
220	7	23	0	-2.28	157.67	1376	SM	10.5	5.52	164.79	300	Q
220	7	24	0	0.92	157.52	1377	SM	10.2	6.54	164.85	300	Q
220	7	25	0	4.12	157.37	1378	SM	10.0	7.48	164.89	300	Q
220	7	26	0	7.33	157.22	1379	SM	>10.0	8.36	164.89	300	Q
220	7	27	0	10.53	157.08	1380	SM	>10.0	9.24	164.86	300	Q
220	7	28	0	13.73	156.93	1381	SM	>10.0	10.13	164.81	300	Q
220	7	29	0	16.93	156.79	1382	SM	>10.0	11.08	164.72	300	Q
220	7	30	0	20.12	156.65	1383	SM	>10.0	12.11	164.61	300	Q
220	7	31	0	23.31	156.52	1384	SM	>10.0	13.28	164.45	300	Q
220	7	32	0	26.50	156.39	1386	SM	>10.0	14.63	164.25	300	Q
220	7	33	0	29.69	156.27	1387	SM	9.7	16.22	164.01	300	Q
220	7	34	0	32.88	156.16	1388	SM	9.0	18.09	163.72	300	Q
220	7	35	0	36.06	156.06	1390	SM, ER	7.5	20.30	163.40	300	Q
220	7	36	0	39.24	155.97	1391	SM, ER	7.0	22.86	163.04	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 9 AUGUST 1970 DAY 221

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
221	6	0	0	-24.79	176.57	1372	SM, ER	6.6	-8.02	171.92	300	
221	6	1	0	-21.59	176.44	1373	SM, ME, ER	6.7	-5.07	171.54	300	Q
221	6	2	0	-18.38	176.31	1373	SM, ME, ER	~ 8.5	-2.48	171.18	300	Q
221	6	3	0	-15.18	176.17	1374	SM, ME(<2)	>10.0	-0.27	170.85	300	Q
221	6	4	0	-11.98	176.02	1375	SM, ME(<2)	>10.0	1.58	170.56	300	Q
221	6	5	0	-8.77	175.88	1375	SM	>10.0	3.13	170.32	300	Q
221	6	6	0	-5.57	175.73	1376	SM	>10.0	4.44	170.13	300	Q
221	6	7	0	-2.36	175.58	1377	SM	>10.0	5.57	169.97	300	Q
221	6	8	0	0.84	175.43	1378	SM	10.1	6.57	169.84	300	Q
221	6	9	0	4.05	175.28	1379	SM	9.8	7.48	169.74	300	Q
221	6	10	0	7.25	175.14	1380	SM	10.2	8.34	169.67	300	Q
221	6	11	0	10.45	174.99	1381	SM	>10.0	9.18	169.61	300	Q
221	6	12	0	13.65	174.84	1382	SM	>10.0	10.03	169.58	300	Q
221	6	13	0	16.84	174.70	1383	SM	>10.0	10.93	169.57	300	Q
221	6	14	0	20.04	174.56	1384	SM	>10.0	11.91	169.57	300	Q
221	6	15	0	23.23	174.43	1386	SM	>10.0	13.01	169.60	300	Q
221	6	16	0	26.42	174.30	1387	SM, ME(<2), CE(1.8), ER	9.0	14.28	169.65	300	Q
221	6	17	0	29.61	174.18	1388	SM, ME(<2.5), ER	8.4	15.77	169.72	300	Q
221	6	18	0	32.79	174.07	1390	SM, ER	8.2	17.55	169.81	300	Q
221	6	19	0	35.97	173.97	1391	SM, ER	7.9	19.66	169.93	300	Q
221	6	20	0	39.15	173.88	1392	SM, ER	7.1	22.15	170.07	300	Q
221	6	21	0	42.32	173.80	1394			25.00	170.22	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 9 AUGUST 1978 DAY 221

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM
221	18	13	0	43.35	171.86	1430			25.50	169.41	300
221	18	14	0	40.20	171.79	1430			22.59	169.26	300
221	18	15	0	37.06	171.70	1430			20.04	169.11	300
221	18	16	0	33.91	171.60	1431			17.87	168.98	300
221	18	17	0	30.76	171.49	1431	SM, ME, ER	4.6	16.05	168.86	300
221	18	18	0	27.61	171.37	1431	VSP, STV, ME, ER	4.8	14.53	168.76	300
221	18	19	0	24.46	171.25	1430	VSP, STV, ME, CE(2), ER	4.8	13.25	168.68	300
221	18	20	0	21.31	171.11	1430	SP, STV, ME, ER	5.1	12.15	168.61	300
221	18	21	0	18.15	170.98	1430	SP, STV, ME, CE(1.6), ER	5.1	11.18	168.55	300
221	18	22	0	14.99	170.83	1429	SP, STV, ME, ER	4.8	10.31	168.50	300
221	18	23	0	11.83	170.69	1429	SP(<2.5), ME, ER	4.7	9.49	168.46	300
221	18	24	0	8.67	170.54	1428	SP(<2), ME, ER	4.3	8.70	168.42	300
221	18	25	0	5.51	170.39	1427	SM, WSP(<1.7), ER	4.0	7.92	168.39	300
221	18	26	0	2.35	170.24	1427	SP(<1.8), ER	3.8	7.10	168.37	300
221	18	27	0	-0.82	170.09	1426	SP(<2), ER	3.7	6.22	168.35	300
221	18	28	0	-3.98	169.94	1425	SP(<2), ER	3.6	5.25	168.34	300
221	18	29	0	-7.14	169.79	1423			4.14	168.32	300
221	18	30	0	-10.31	169.65	1422			2.85	168.32	300
221	18	31	0	-13.48	169.50	1421			1.31	168.31	300
221	18	32	0	-16.64	169.36	1420			-0.55	168.31	300
221	18	33	0	-19.81	169.22	1418			-2.76	168.31	300
221	18	34	0	-22.97	169.08	1417			-5.37	168.31	300
221	18	35	0	-26.14	168.95	1415			-8.35	168.30	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 10 AUGUST 1978 DAY 222

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
222	6	38	0	-23.79	165.93	1373	SM, ER	6.5	-6.53	166.93	300	
222	6	39	0	-20.59	165.80	1374	SM, ER	6.8	-3.75	166.94	300	Q
222	6	40	0	-17.38	165.67	1374	SM, ER	7.1	-1.35	166.95	300	Q
222	6	41	0	-14.18	165.52	1375	SM, ER	8.3	0.67	166.96	300	Q
222	6	42	0	-10.98	165.38	1376	SM	>10.0	2.34	166.97	300	Q
222	6	43	0	-7.77	165.23	1376	SM, ER	13.0	3.75	166.98	300	Q
222	6	44	0	-4.57	165.09	1377	SM, ER	12.2	4.94	166.98	300	Q
222	6	45	0	-1.37	164.94	1378	SM, ER	11.5	5.98	166.97	300	Q
222	6	46	0	1.84	164.79	1379	SM, ER	11.1	6.91	166.95	300	Q
222	6	47	0	5.04	164.64	1380	SM, ER	11.1	7.77	166.93	300	Q
222	6	48	0	8.24	164.49	1381	SM, ER	12.1	8.59	166.91	300	Q
222	6	49	0	11.44	164.35	1382	SM, ER	12.7	9.41	166.87	300	Q
222	6	50	0	14.64	164.20	1384	SM, ER	14.1	10.26	166.83	300	Q
222	6	51	0	17.83	164.06	1385	SM, ER	14.1	11.16	166.78	300	Q
222	6	52	0	21.02	163.93	1386	SM, ER	14.0	12.16	166.71	300	Q
222	6	53	0	24.21	163.79	1387	SM, ER	11.1	13.29	166.64	300	Q
222	6	54	0	27.40	163.67	1389	SM, ER	9.5	14.60	166.54	300	Q
222	6	55	0	30.59	163.55	1390	SM, ER	8.4	16.17	166.43	300	Q
222	6	56	0	33.77	163.44	1391	SM, ER	7.5	18.04	166.31	300	Q
222	6	57	0	36.94	163.34	1393	SM, ER	7.1	20.26	166.16	300	Q
222	6	58	0	40.12	163.25	1394	SM, ER	6.7	22.86	166.00	300	Q
222	6	59	0	43.29	163.19	1396			25.82	165.84	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 10 AUGUST 1978 DAY 222

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
222	18	51	0	42.40	161.24	1430	SM, ER	6.5	24.75	165.12	300	Q
222	18	52	0	39.26	161.17	1430	SM, ER	6.5	21.95	165.28	300	Q
222	18	53	0	36.11	161.07	1430	SM, ER	6.0	19.51	165.43	300	Q
222	18	54	0	32.96	160.97	1430	SM, ER	5.8	17.44	165.56	300	Q
222	18	55	0	29.82	160.86	1430	SM, WSP(NP), ER	5.7	15.70	165.66	300	Q
222	18	56	0	26.66	160.74	1430	SP, STV, ER	5.3	14.24	165.73	300	Q
222	18	57	0	23.51	160.61	1430	SP, STV, ME, ER	5.1	13.01	165.79	300	Q
222	18	58	0	20.35	160.47	1429	SP, STV, ME, ER	5.0	11.94	165.82	300	Q
222	18	59	0	17.20	160.33	1429	SP, STV, ME, ER	4.5	10.98	165.83	300	Q
222	19	0	0	14.04	160.19	1428	SP, STV, ME, RSP, ER	4.4	10.11	165.81	300	Q
222	19	1	0	10.88	160.05	1428	SP(<2.5), ME, RSP, ER	5.2	9.28	165.78	300	Q
222	19	2	0	7.72	159.90	1427	SP(<2), ER	~6.0	8.47	165.73	300	Q
222	19	3	0	4.55	159.75	1426	SM, WSP(<2), ER	6.5	7.65	165.66	300	Q
222	19	4	0	1.39	159.60	1425	SM, WSP(<2), ER	6.4	6.78	165.57	300	Q
222	19	5	0	-1.78	159.45	1424	SM, WSP(<2), ER	4.4	5.84	165.44	300	Q
222	19	6	0	-4.94	159.30	1423	SM, WSP(<2), ER	4.0	4.78	165.29	300	Q
222	19	7	0	-8.11	159.15	1422	SM, WSP(<2), ER	4.0	3.56	165.10	300	Q
222	19	8	0	-11.27	159.00	1421	SM, WSP(<2), ER	3.8	2.12	164.87	300	Q
222	19	9	0	-14.44	158.86	1419	SM, ER	3.3	0.41	164.59	300	Q
222	19	10	0	-17.61	158.72	1418	SM, ER	3.5	-1.64	164.27	300	Q
222	19	11	0	-20.78	158.58	1416	SM, ER	3.5	-4.06	163.91	300	Q
222	19	12	0	-23.94	158.45	1415			-6.85	163.52	300	Q

PROJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 11 AUGUST 1978 DAY 223

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
223	5	23	0	-20.64	-176.28	1374	SM, ER	11.9	-5.42	175.14	300	Q
223	5	24	0	-17.43	-176.42	1375	SM, ER	15.0	-2.83	174.54	300	Q
223	5	25	0	-14.23	-176.56	1376	SM, ER	14.9	-0.58	173.98	300	Q
223	5	26	0	-11.03	-176.71	1376	SM, ER	14.1	1.35	173.49	300	Q
223	5	27	0	-7.82	-176.85	1377	SM, ER	11.7	2.99	173.07	300	Q
223	5	28	0	-4.62	-177.00	1378	SM, ER	9.4	4.38	172.72	300	Q
223	5	29	0	-1.42	-177.15	1379	SM, ER	8.7	5.60	172.44	300	Q
223	5	30	0	1.78	-177.30	1380	SM, ER	8.5	6.68	172.22	300	Q
223	5	31	0	4.98	-177.45	1381	SM, ER	9.1	7.67	172.05	300	Q
223	5	32	0	8.18	-177.59	1382	SM, ER	9.8	8.62	171.93	300	Q
223	5	33	0	11.38	-177.74	1384	SM, ER	11.4	9.54	171.86	300	Q
223	5	34	0	14.58	-177.88	1385	SM, ER	~14.0	10.49	171.83	300	Q
223	5	35	0	17.77	-178.02	1386	SM, ER	~15.3	11.50	171.85	300	Q
223	5	36	0	20.96	-178.16	1387	SM, ER	~15.0	12.59	171.91	300	Q
223	5	37	0	24.15	-178.29	1389	SM, ER	~13.0	13.83	172.02	300	Q
223	5	38	0	27.34	-178.42	1390	SM, ER	9.5	15.25	172.17	300	Q
223	5	39	0	30.52	-178.54	1391	SM, ME(<2.5), CE(1.7), ER	7.7	16.92	172.38	300	Q
223	5	40	0	33.70	-178.65	1393	SM, ME(<2.5), ER	7.1	18.88	172.64	300	Q
223	5	41	0	36.88	-178.75	1394	SM, ME(<2), ER	6.6	21.17	172.93	300	
223	5	42	0	40.05	-178.83	1396	SM, ME(<2), ER	6.5	23.79	173.25	300	
223	7	16	0	-22.77	155.30	1374	SM, ME(<2.5), ER	6.9	-6.64	161.93	300	Q
223	7	17	0	-19.57	155.16	1374	SM, ME(<2), ER	7.1	-3.92	162.30	300	Q
223	7	18	0	-16.37	155.03	1375	SM, ER	8.9	-1.54	162.65	300	Q
223	7	19	0	-13.17	154.88	1376	SM, ER	10.8	0.49	162.96	300	Q
223	7	20	0	-9.96	154.74	1377	SM, ER	12.0	2.21	163.23	300	Q
223	7	21	0	-6.76	154.59	1378	SM, ER	13.2	3.67	163.44	300	Q
223	7	22	0	-3.56	154.44	1379	SM, ER	12.2	4.93	163.60	300	Q
223	7	23	0	-0.36	154.29	1380	SM, ER	11.6	6.04	163.72	300	Q
223	7	24	0	2.85	154.15	1381	SM, ER	10.9	7.05	163.79	300	Q
223	7	25	0	6.05	154.00	1382	SM, ER	10.9	8.00	163.83	300	Q
223	7	26	0	9.25	153.85	1383	SM, ER	11.7	8.92	163.82	300	Q
223	7	27	0	12.44	153.70	1384	SM, ER	12.9	9.84	163.77	300	Q
223	7	28	0	15.64	153.56	1385	SM, ER	13.9	10.81	163.69	300	Q
223	7	29	0	18.83	153.42	1387	SM	>13.0	11.85	163.56	300	Q
223	7	30	0	22.02	153.29	1388	SM, ER	13.4	13.02	163.38	300	Q
223	7	31	0	25.21	153.16	1389	SM, ER	11.9	14.34	163.15	300	Q
223	7	32	0	28.39	153.03	1391	SM, ER	10.1	15.89	162.87	300	Q
223	7	33	0	31.58	152.92	1392	SM, ER	9.0	17.69	162.53	300	Q
223	7	34	0	34.76	152.81	1393	SM, ER	8.0	19.81	162.14	300	Q
223	7	35	0	37.93	152.72	1395	SM, ER	7.1	22.26	161.72	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 11 AUGUST 1978 DAY 223

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
223	17 35 0	42.48	179.15	1430			25.38	172.47	300	
223	17 36 0	39.34	179.08	1430	SM, ME, ER	5.5	22.54	172.12	300	Q
223	17 37 0	36.19	178.99	1430	SM, ME	~5.5	20.04	171.78	300	Q
223	17 38 0	33.05	178.88	1430	SM, ME	5.0	17.89	171.47	300	Q
223	17 39 0	29.90	178.77	1430	SM, ME, CE(1.8), ER	5.0	16.07	171.20	300	Q
223	17 40 0	26.74	178.65	1429	SM, ME, CE(2), ER	4.8	14.53	170.97	300	Q
223	17 41 0	23.59	178.52	1429	VSP, STV, ME, CE(1.9), ER	4.2	13.23	170.79	300	Q
223	17 42 0	20.43	178.39	1429	VVSP, STV, ME, CE(1.7), ER	4.0	12.10	170.64	300	Q
223	17 43 0	17.28	178.25	1428	VVSP, STV, ME, CE(1.8), ER	3.8	11.10	170.53	300	Q
223	17 44 0	14.12	178.10	1427	VSP, STV, ME, CE(1.8)	4.5	10.19	170.44	300	Q
223	17 45 0	10.95	177.96	1427	SP(<2), ME, CE(1.7), ER	5.2	9.33	170.39	300	Q
223	17 46 0	7.79	177.81	1426	SM, WSP(<2), CE(3.5)	~5.0	8.50	170.36	300	Q
223	17 47 0	4.63	177.66	1425	SM, WSP(NP), CE(1.7), ER	4.0	7.65	170.36	300	Q
223	17 48 0	1.46	177.51	1424	SM, CE(1.7), ER	3.2	6.77	170.38	300	Q
223	17 49 0	-1.70	177.36	1423	SM, CE(1.8), ER	3.2	5.82	170.42	300	Q
223	17 50 0	-4.87	177.21	1422	SM, CE(1.8), ER	3.0	4.76	170.50	300	Q
223	17 51 0	-8.04	177.06	1421	SM, ME, CE(1.8), ER	3.1	3.54	170.61	300	Q
223	17 52 0	-11.20	176.92	1419	SM, ME, ER	3.3	2.12	170.75	300	Q
223	17 53 0	-14.37	176.77	1418	SM, ME, CE(1.6), ER	3.3	0.42	170.93	300	Q
223	17 54 0	-17.54	176.63	1417	SM, ME, ER	3.8	-1.59	171.14	300	Q
223	17 55 0	-20.71	176.49	1415	SM, ME, ER	3.8	-3.97	171.37	300	Q
223	17 56 0	-23.88	176.36	1414	SM, ME, ER	4.0	-6.72	171.62	300	Q

223	19 30 0	38.30	150.54	1430	VSP, STV, ER	5.5	22.67	160.76	300	Q
223	19 31 0	35.15	150.45	1430	VSP, ME, CE(1.6)	5.0	20.25	161.14	300	Q
223	19 32 0	32.00	150.34	1430	VSP, ME, CE(1.5), ER	5.5	18.14	161.48	300	Q
223	19 33 0	28.85	150.22	1429	VSP, ME, ER	5.5	16.33	161.77	300	Q
223	19 34 0	25.70	150.10	1429	SP, ME, ER	5.5	14.77	162.00	300	Q
223	19 35 0	22.54	149.97	1429	SM, ER	4.8	13.42	162.17	300	Q
223	19 36 0	19.39	149.83	1428	SM, WSP(NP), CE(1.5), ER	4.8	12.23	162.28	300	Q
223	19 37 0	16.23	149.69	1428	SM, ER	3.7	11.15	162.33	300	Q
223	19 38 0	13.07	149.55	1427	SM, RSP	3.9	10.14	162.32	300	Q
223	19 39 0	9.91	149.40	1426	SM, RSP	~ 3.9	9.17	162.27	300	Q
223	19 40 0	6.74	149.25	1426	VSP, STV	4.1	8.20	162.15	300	Q
223	19 41 0	3.58	149.11	1425	VSP, STV	4.5	7.20	161.98	300	Q
223	19 42 0	0.41	148.96	1424	SP, STV	~ 4.0	6.13	161.74	300	Q
223	19 43 0	-2.75	148.81	1423	SM, RSP, ER	~ 4.8	4.95	161.43	300	Q
223	19 44 0	-5.92	148.66	1421	SM	4.2	3.61	161.05	300	Q
223	19 45 0	-9.09	148.51	1420	SM, ME, ER	4.7	2.07	160.58	300	Q
223	19 46 0	-12.25	148.36	1419	SM, ME, ER	4.0	0.28	160.04	300	Q
223	19 47 0	-15.42	148.22	1417	SM, ME, ER	3.5	-1.80	159.42	300	Q
223	19 48 0	-18.59	148.08	1416			-4.19	158.75	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 12 AUGUST 1978 DAY 224

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
224	6 0 0	-22.81	173.21	1375			-5.82	170.15	300	
224	6 1 0	-19.61	173.08	1375	SM, ME(<2), ER	7.4	-3.12	169.89	300	Q
224	6 2 0	-16.41	172.94	1376	SM, ME(<2), ER	9.5	-0.81	169.66	300	Q
224	6 3 0	-13.21	172.80	1377	SM, ER	14.5	1.12	169.46	300	Q
224	6 4 0	-10.00	172.65	1378	SM, ER	13.7	2.74	169.29	300	Q
224	6 5 0	-6.80	172.51	1379	SM, ER	12.4	4.09	169.15	300	Q
224	6 6 0	-3.60	172.36	1380	SM, ER	11.2	5.25	169.04	300	Q
224	6 7 0	-0.40	172.21	1381	SM, ER	9.8	6.26	168.94	300	Q
224	6 8 0	2.80	172.06	1382	SM, ER	9.2	7.17	168.87	300	Q
224	6 9 0	6.00	171.91	1383	SM, ER	9.5	8.02	168.80	300	Q
224	6 10 0	9.20	171.76	1384	SM, ER	10.7	8.84	168.75	300	Q
224	6 11 0	12.40	171.62	1385	SM, ER	12.3	9.66	168.72	300	Q
224	6 12 0	15.59	171.48	1387	SM, ER	14.3	10.52	168.69	300	Q
224	6 13 0	18.78	171.34	1388	SM, ER	15.0	11.44	168.67	300	Q
224	6 14 0	21.97	171.20	1389	SM, ER	13.6	12.46	168.66	300	Q
224	6 15 0	25.16	171.07	1391	SM, ME(<2), CE(1.8), ER	11.2	13.63	168.66	300	Q
224	6 16 0	28.34	170.95	1392	SM, ME(<2.5), CE(1.8), ER	9.7	15.00	168.68	300	Q
224	6 17 0	31.53	170.83	1393	SM, ME(<2.5), ER	9.0	16.63	168.70	300	Q
224	6 18 0	34.70	170.72	1395	VSP(<2.5), ME, CE(1.8), ER	7.5	18.58	168.74	300	Q
224	6 19 0	37.88	170.63	1396	VVSP(<2.5), ME, ER	7.0	20.90	168.78	300	Q
224	6 20 0	41.05	170.55	1398	VSP(<2.5), ME, ER	6.9	23.59	168.83	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 12 AUGUST 1978 DAY 224

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
224	18	13	0	41.51	168.53	1429	SP, ME, ER	4.5	23.66	168.04	300	Q
224	18	14	0	38.36	168.45	1429	SP, ME, ER	4.5	20.96	167.99	300	Q
224	18	15	0	35.22	168.36	1429	SP, ME, ER	4.5	18.65	167.94	300	Q
224	18	16	0	32.07	168.25	1429	SM, WSP, ME, ER	4.5	16.70	167.89	300	Q
224	18	17	0	28.92	168.14	1429	SM, WSP, ME, ER	4.7	15.08	167.85	300	Q
224	18	18	0	25.76	168.01	1429	SM, WSP, ME, ER	4.6	13.71	167.81	300	Q
224	18	19	0	22.61	167.88	1428	SM, WSP, ME, ER	4.6	12.56	167.77	300	Q
224	18	20	0	19.45	167.75	1428	SM, WSP, ME, ER	4.7	11.55	167.73	300	Q
224	18	21	0	16.29	167.61	1427	SM, WSP, ER	4.6	10.65	167.70	300	Q
224	18	22	0	13.13	167.46	1426	SM, ER	4.6	9.82	167.66	300	Q
224	18	23	0	9.97	167.32	1425	SM, WSP(NP), ER	4.6	9.02	167.63	300	Q
224	18	24	0	6.81	167.17	1425	SP(>3.3), STV, ER	4.5	8.24	167.59	300	Q
224	18	25	0	3.64	167.02	1424	SP(>3.1), STV, ER	5.0	7.44	167.55	300	Q
224	18	26	0	0.47	166.87	1423	VSP(>3.2), STV, ER	4.6	6.59	167.51	300	Q
224	18	27	0	-2.69	166.72	1421	SM, WSP(NP), ER	4.2	5.66	167.46	300	Q
224	18	28	0	-5.86	166.57	1420	SM, ER	4.0	4.61	167.40	300	Q
224	18	29	0	-9.03	166.42	1419	SM, ER	3.8	3.39	167.34	300	Q
224	18	30	0	-12.20	166.27	1418	SM, ME, ER	3.8	1.95	167.26	300	Q
224	18	31	0	-15.37	166.13	1416	SM, ME, ER	3.7	0.22	167.17	300	Q
224	18	32	0	-18.54	165.99	1415	SM, WSP(NP), ER	3.7	-1.86	167.07	300	Q
224	18	33	0	-21.70	165.85	1413	SM, ER	3.7	-4.33	166.96	300	Q
224	18	34	0	-24.87	165.72	1412			-7.18	166.83	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 13 AUGUST 1970 DAY 225

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#225#	4	46	0	-16.43	-169.15	1377	SM, ME(<2.5), ER	12.2	-3.67	178.80	300	
#225#	4	47	0	-13.23	-169.29	1378	SM, ME(<2.5), ER	13.3	-1.33	178.06	300	Q
#225#	4	48	0	-10.03	-169.43	1379	SM, ME(<2), ER	13.0	0.73	177.38	300	Q
#225#	4	49	0	-6.83	-169.58	1380	SM, ME	12.0	2.53	176.78	300	Q
#225#	4	50	0	-3.63	-169.73	1381	SM, ER	10.6	4.10	176.26	300	Q
#225#	4	51	0	-0.43	-169.88	1382	SM, ER	10.3	5.49	175.83	300	Q
#225#	4	52	0	2.77	-170.03	1383	SM, ER	10.6	6.74	175.50	300	Q
#225#	4	53	0	5.97	-170.17	1384	SM, ER	11.3	7.90	175.25	300	Q
#225#	4	54	0	9.17	-170.32	1385	SM, ER	12.5	9.01	175.07	300	Q
#225#	4	55	0	12.36	-170.47	1387	SM, ER	13.5	10.11	174.98	300	Q
#225#	4	56	0	15.56	-170.61	1388	SM, ER	14.0	11.23	174.95	300	Q
#225#	4	57	0	18.75	-170.75	1389	SM, ER	13.4	12.43	175.00	300	Q
#225#	4	58	0	21.94	-170.89	1391	SM, ER	12.6	13.73	175.13	300	Q
#225#	4	59	0	25.12	-171.02	1392	SM, ME(<2), CE(1.6), ER	11.1	15.19	175.32	300	Q
#225#	5	0	0	28.30	-171.14	1393	SM, ER	10.5	16.85	175.59	300	Q
#225#	5	1	0	31.48	-171.26	1395		9.5	18.75	175.93	300	Q
#225#	5	2	0	34.66	-171.36	1396		8.5	20.92	176.32	300	Q
#225#	5	3	0	37.83	-171.46	1397			23.38	176.74	300	
#225#	6	37	0	-24.97	162.70	1375	SM, ER	9.0	-7.80	165.39	300	Q
#225#	6	38	0	-21.77	162.57	1376	SM, ER	9.1	-4.87	165.52	300	Q
#225#	6	39	0	-18.57	162.44	1376	SM, ER	9.7	-2.32	165.65	300	Q
#225#	6	40	0	-15.37	162.30	1377	SM, ME(<2), ER	11.1	-0.15	165.76	300	Q
#225#	6	41	0	-12.17	162.16	1378	SM, ME(<2), ER	13.0	1.66	165.86	300	Q
#225#	6	42	0	-8.97	162.01	1379	SM, ER	13.3	3.17	165.94	300	Q
#225#	6	43	0	-5.76	161.86	1380	SM, ER	12.7	4.46	166.00	300	Q
#225#	6	44	0	-2.56	161.72	1381	SM, ER	11.8	5.56	166.04	300	Q
#225#	6	45	0	0.64	161.57	1382	SM, ER	11.0	6.54	166.06	300	Q
#225#	6	46	0	3.84	161.42	1383	SM, ER	10.3	7.44	166.07	300	Q
#225#	6	47	0	7.03	161.27	1385	SM, ER	10.1	8.29	166.06	300	Q
#225#	6	48	0	10.23	161.12	1386	SM, ER	10.9	9.12	166.03	300	Q
#225#	6	49	0	13.42	160.98	1387	SM, ER	12.1	9.97	165.99	300	Q
#225#	6	50	0	16.62	160.84	1388	SM, ER	12.5	10.86	165.92	300	Q
#225#	6	51	0	19.81	160.70	1390	SM, ER	14.8	11.83	165.84	300	Q
#225#	6	52	0	23.00	160.56	1391	SM, ER	14.5	12.93	165.74	300	Q
#225#	6	53	0	26.18	160.43	1392	SM, ME(<1.7), ER	13.0	14.19	165.61	300	Q
#225#	6	54	0	29.36	160.31	1394			15.67	165.45	300	Q
#225#	6	55	0	32.54	160.20	1395			17.44	165.26	300	Q
#225#	6	56	0	35.72	160.10	1397			19.55	165.03	300	Q
#225#	6	57	0	38.89	160.01	1398			22.02	164.79	300	Q
#225#	6	58	0	42.06	159.93	1399			24.84	164.53	300	Q

OBJECT: 5104 TSIS 2 PASS SUMMARY FOR KWAJALEIN FOR 13 AUGUST 1978 DAY 225

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#225#	16	58	0	38.42	-173.64	1429	SM, ME	4.2	23.09	175.46	300	
#225#	16	59	0	35.27	-173.73	1429	SM, ME(<2), ER	4.1	20.60	174.96	300	Q
#225#	17	0	0	32.12	-173.84	1429	SM, ER	4.2	18.42	174.49	300	SC
#225#	17	1	0	28.97	-173.95	1428	SM, ME, WSP, ER	4.2	16.53	174.08	300	SC
#225#	17	2	0	25.82	-174.08	1428	SM, ME, ER	4.4	14.91	173.72	300	?
#225#	17	3	0	22.66	-174.21	1427	SM, ME, ER	4.7	13.51	173.43	300	Q
#225#	17	4	0	19.51	-174.34	1427	SM, ME, ER	5.2	12.27	173.21	300	Q
#225#	17	5	0	16.35	-174.48	1426	SM, ME, ER	5.5	11.17	173.04	300	Q
#225#	17	6	0	13.18	-174.62	1425	SM, RSP, ER	6.0	10.16	172.92	300	Q
#225#	17	7	0	10.02	-174.77	1425	SM, RSP, ER	6.1	9.19	172.86	300	Q
#225#	17	8	0	6.86	-174.92	1424	VSP, STV, RSP, CE(1.3), ER	6.1	8.24	172.85	300	Q
#225#	17	9	0	3.69	-175.07	1423	VSP, STV, RSP, ER	6.0	7.27	172.88	300	Q
#225#	17	10	0	0.52	-175.22	1421	VSP, STV, RSP, ME, ER	5.5	6.25	172.97	300	Q
#225#	17	11	0	-2.64	-175.37	1420	VSP, STV, RSP, ME, ER	~ 5.0	5.14	173.12	300	Q
#225#	17	12	0	-5.81	-175.52	1419	VSP, STV, RSP, ME	4.7	3.89	173.32	300	WS
#225#	17	13	0	-8.98	-175.67	1418	SP(>3), ET(3.0), STV, ER	~ 5.0	2.47	173.58	300	WS
#225#	17	14	0	-12.15	-175.81	1416	SP(>3.5), ET(3.5), RSP, ME, ER	4.8	0.80	173.90	300	WS
#225#	17	15	0	-15.32	-175.96	1415	SP(>3.3), ET(3.3), RSP, ME, ER	4.0	-1.14	174.28	300	Q
#225#	17	16	0	-18.49	-176.10	1413			-3.39	174.71	300	
#225#	17	17	0	-21.66	-176.23	1412			-5.97	175.16	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 13 AUGUST 1978 DAY 225

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
225	18	51	0	40.52	157.91	1429	SM, ME	4.3	23.37	163.87	300	Q
225	18	52	0	37.38	157.83	1429	SM, WSP, ER	4.3	20.77	164.11	300	Q
225	18	53	0	34.23	157.73	1429	SP, STV, ER	4.3	18.53	164.33	300	Q
225	18	54	0	31.08	157.62	1428	VSP, STV, ER	4.3	16.62	164.51	300	Q
225	18	55	0	27.93	157.50	1428	VVSP, STV, ME, ER	4.5	15.02	164.65	300	Q
225	18	56	0	24.77	157.37	1428	VVSP, ME, CE(1.4), ER	4.4	13.67	164.76	300	Q
225	18	57	0	21.61	157.24	1427	VVSP, STV, ME, ER	4.2	12.50	164.83	300	Q
225	18	58	0	18.46	157.11	1427	SP, STV, ME, ER	4.3	11.47	164.87	300	Q
225	18	59	0	15.30	156.96	1426	SP, STV, ME, ER	4.5	10.53	164.88	300	Q
225	19	0	0	12.13	156.82	1425	SP, STV, ME, ER	5.2	9.66	164.86	300	Q
225	19	1	0	8.97	156.67	1424	VSP, STV, ME, ER	~5.0	8.81	164.81	300	Q
225	19	2	0	5.80	156.53	1423	VSP, STV, ME, ER	4.5	7.96	164.74	300	Q
225	19	3	0	2.64	156.38	1422	VSP, STV, ER	3.8	7.08	164.62	300	Q
225	19	4	0	-0.53	156.23	1421	VSP, STV, ER	4.0	6.13	164.47	300	Q
225	19	5	0	-3.70	156.08	1420	SP, STV, ER	3.5	5.07	164.28	300	Q
225	19	6	0	-6.87	155.93	1418	SP(<2), ER	3.6	3.86	164.05	300	Q
225	19	7	0	-10.04	155.78	1417	SM, ME, ER	3.3	2.45	163.75	300	Q
225	19	8	0	-13.21	155.63	1416	SM, ME, ER	3.0	0.77	163.40	300	Q
225	19	9	0	-16.38	155.49	1414	SM, ME, ER	2.8	-1.21	162.99	300	Q
225	19	10	0	-19.55	155.35	1413	SM, ME, ER	2.8	-3.55	162.53	300	Q
225	19	11	0	-22.72	155.22	1411	SM, ME, ER	3.0	-6.25	162.03	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 14 AUGUST 1978 DAY 226

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#226#	5	22	0	-21.78	-179.51	1376	SM, ER	7.5	-5.79	173.55	300	Q
#226#	5	23	0	-18.58	-179.65	1377	SM, ER	10.0	-3.13	173.05	300	Q
#226#	5	24	0	-15.38	-179.79	1378	SM, ER	12.7	-0.83	172.58	300	Q
#226#	5	25	0	-12.18	-179.93	1379	SM, ER	13.6	1.12	172.17	300	Q
#226#	5	26	0	-8.98	179.93	1380	SM, ER	13.3	2.77	171.82	300	Q
#226#	5	27	0	-5.78	179.78	1381	SM, ER	12.3	4.16	171.52	300	Q
#226#	5	28	0	-2.58	179.63	1382	SM, ER	10.5	5.36	171.29	300	Q
#226#	5	29	0	0.62	179.48	1383	SM, ER	9.7	6.42	171.10	300	Q
#226#	5	30	0	3.82	179.33	1385	SM, ER	9.7	7.38	170.96	300	Q
#226#	5	31	0	7.01	179.18	1386	SM, ER	10.1	8.28	170.85	300	Q
#226#	5	32	0	10.21	179.04	1387	SM, ER	11.2	9.16	170.78	300	Q
#226#	5	33	0	13.40	178.89	1388	SM, ER	13.9	10.04	170.75	300	Q
#226#	5	34	0	16.59	178.75	1390	SM, ER	14.1	10.97	170.74	300	Q
#226#	5	35	0	19.78	178.61	1391	SM, ER	14.7	11.97	170.76	300	Q
#226#	5	36	0	22.97	178.48	1392	SM, ER	13.0	13.10	170.82	300	Q
#226#	5	37	0	26.15	178.35	1394	SM, ER	12.6	14.38	170.92	300	Q
#226#	5	38	0	29.33	178.23	1395	SM, ER	10.5	15.89	171.05	300	Q
#226#	5	39	0	32.51	178.11	1397	SM, ER	9.0	17.68	171.23	300	Q
#226#	5	40	0	35.69	178.01	1398	SM, ER	8.7	19.79	171.44	300	Q
#226#	5	41	0	38.86	177.92	1399	SM, ER	8.0	22.25	171.67	300	Q
#226#	5	42	0	42.02	177.84	1401	SM, ER	6.9	25.06	171.93	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 14 AUGUST 1978 DAY 226

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#226#	7	16	0	-20.72	151.94	1377	SM, ER	7.5	-5.43	160.43	300	Q
#226#	7	17	0	-17.52	151.80	1378	SM, ER	7.4	-2.89	160.88	300	Q
#226#	7	18	0	-14.32	151.66	1378	SM, ER	7.0	-0.67	161.29	300	Q
#226#	7	19	0	-11.12	151.52	1379	SM, ME(<2), ER	11.5	1.23	161.66	300	Q
#226#	7	20	0	-7.92	151.37	1380	SM, ER	13.3	2.85	161.97	300	Q
#226#	7	21	0	-4.72	151.22	1382	SM, ER	13.5	4.25	162.21	300	Q
#226#	7	22	0	-1.52	151.07	1383	SM, ER	12.7	5.48	162.39	300	Q
#226#	7	23	0	1.68	150.92	1384	SM, ER	11.6	6.59	162.52	300	Q
#226#	7	24	0	4.88	150.78	1385	SM, ER	10.7	7.62	162.59	300	Q
#226#	7	25	0	8.08	150.63	1386	SM, ER	10.1	8.60	162.61	300	Q
#226#	7	26	0	11.27	150.48	1388	SM, ER	10.8	9.58	162.58	300	Q
#226#	7	27	0	14.46	150.34	1389	SM, ER	11.5	10.59	162.50	300	Q
#226#	7	28	0	17.66	150.20	1390	SM, ER	12.3	11.66	162.36	300	Q
#226#	7	29	0	20.84	150.06	1392	SM, ER	12.5	12.84	162.16	300	Q
#226#	7	30	0	24.03	149.93	1393	SM, ER	12.2	14.18	161.91	300	Q
#226#	7	31	0	27.21	149.80	1394	SM, ER	9.6	15.71	161.59	300	Q
#226#	7	32	0	30.39	149.68	1396	SM, ME(<2), ER	8.8	17.48	161.20	300	Q
#226#	7	33	0	33.57	149.57	1397	SM, ER	8.9	19.54	160.76	300	Q
#226#	7	34	0	36.74	149.47	1399	SM, ER	8.0	21.90	160.28	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 14 AUGUST 1978 DAY 226

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
#226#	17 35 0	40.56	175.83	1429			23.22	170.87	300	
#226#	17 36 0	37.42	175.74	1428	SM, ME	4.4	20.61	170.62	300	Q
#226#	17 37 0	34.27	175.64	1428	SM, ME	4.3	18.36	170.38	300	Q
#226#	17 38 0	31.12	175.53	1428	SP, STV, ME, ER	4.8	16.46	170.17	300	Q
#226#	17 39 0	27.97	175.41	1427	SP, STV, ME, ER	4.7	14.87	169.99	300	Q
#226#	17 40 0	24.81	175.29	1427	SP, STV, ME, ER	4.6	13.53	169.84	300	Q
#226#	17 41 0	21.65	175.16	1426	SP, ME, STV, ER	4.4	12.38	169.72	300	Q
#226#	17 42 0	18.50	175.02	1426	VVSP, STV, ME, ER	4.3	11.37	169.63	300	Q
#226#	17 43 0	15.33	174.88	1425	VVSP, STV, ME, ER	3.8	10.46	169.55	300	Q
#226#	17 44 0	12.17	174.73	1424	VVSP, STV, ME, ER	3.7	9.61	169.50	300	Q
#226#	17 45 0	9.01	174.59	1423	VSP, STV, ME, CE(1.4), ER	3.3	8.80	169.46	300	Q
#226#	17 46 0	5.84	174.44	1422	SP, STV, ME, ER	3.5	7.99	169.44	300	Q
#226#	17 47 0	2.67	174.29	1421	SP, STV, ME, ER	3.5	7.15	169.44	300	Q
#226#	17 48 0	-0.50	174.14	1420	SP, STV, ME, CE(1.5), ER	3.5	6.26	169.45	300	Q
#226#	17 49 0	-3.66	173.99	1419	SP, STV, ME, ER	3.3	5.27	169.48	300	Q
#226#	17 50 0	-6.83	173.84	1417	SP, STV, ME, ER	3.0	4.15	169.52	300	Q
#226#	17 51 0	-10.01	173.69	1416	VSP, STV, ME, ER	3.0	2.85	169.59	300	Q
#226#	17 52 0	-13.18	173.55	1414	VSP, STV, ME, CE(1.4), ER	~ 3.0	1.30	169.68	300	Q
#226#	17 53 0	-16.35	173.40	1413	SM, ME, CE(1.5), ER	2.5	-0.56	169.79	300	Q
#226#	17 54 0	-19.52	173.26	1411	SM, ME, ER	2.5	-2.77	169.91	300	Q
#226#	17 55 0	-22.69	173.13	1410	SM, ME, CE(1.6), ER	2.8	-5.37	170.05	300	Q
#226#	17 56 0	-25.86	173.00	1408			-8.34	170.19	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 14 AUGUST 1978 DAY 226

DAY	TIME (Z) HR	MN	SC	SATELLITE LOCATION LAT	LONG	ALT KM	IONOGRAM SUMMARY DESCRIPTION	F-MAX MHZ	PENETRATION LOCATION LAT	LONG	ALT KM	SCINTILLATION SUMMARY
226	19	30	0	36.37	147.20	1428	SM, ME, CE(1.5), ER	5.5	21.87	159.28	300	Q
226	19	31	0	33.22	147.10	1428	SP, STV, ME, ER	5.0	19.60	159.69	300	Q
226	19	32	0	30.07	146.99	1428	SP, STV, ME, ER	4.8	17.61	160.05	300	Q
226	19	33	0	26.92	146.87	1427	SM, ME, ER	4.8	15.87	160.34	300	Q
226	19	34	0	23.76	146.74	1427	SM, ME, ER	4.8	14.36	160.57	300	Q
226	19	35	0	20.60	146.60	1426	VSP, ME, CE(1.5), ER	4.7	13.03	160.73	300	Q
226	19	36	0	17.44	146.47	1425	VSP, ME, CE(1.4), ER	4.7	11.82	160.82	300	Q
226	19	37	0	14.28	146.32	1424	VSP, ME, CE(1.6), ER	4.3	10.71	160.84	300	Q
226	19	38	0	11.12	146.18	1424	SP(<2.5), ME, ER	4.5	9.65	160.79	300	Q
226	19	39	0	7.95	146.03	1423	VSP(<2.5), ER	4.3	8.60	160.67	300	Q
226	19	40	0	4.79	145.88	1422	VSP(<2.5), ER	3.6	7.52	160.48	300	Q
226	19	41	0	1.62	145.73	1420	VSP(<2.5), ME, CE(1.6), ER	3.3	6.39	160.21	300	Q
226	19	42	0	-1.55	145.58	1419	VSP(<2.5), ME, CE(1.5), ER	3.2	5.15	159.86	300	Q
226	19	43	0	-4.72	145.43	1418	SP, STV, ME, ER	3.0	3.76	159.43	300	Q
226	19	44	0	-7.89	145.28	1417	SP, STV, ME, ER	2.7	2.18	158.90	300	Q
226	19	45	0	-11.06	145.14	1415	SP, STV, ME, ER	2.7	0.37	158.29	300	Q
226	19	46	0	-14.23	144.99	1414	SM, ME, ER	2.8	-1.71	157.61	300	Q
226	19	47	0	-17.40	144.85	1412			-4.08	156.87	300	

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